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Original Contributions

Surgical Treatment of Certain Congenital Cardiovascular Abnormalities in Infants and Children

PHILIP E. BERNATZ, M.D.,
JAMES W. DUSHANE, M.D.,
and JOHN W. KIRKLIN, M.D.
Rochester, Minnesota

IT is a universal human desire to insure the survival of children and enable them to progress normally to adulthood. It is unfortunate that the ravages of congenital heart disease have oftentimes prevented such a sequence of events. Until recent years, the physician's participation in the care of these children was necessarily directed toward palliation of symptoms and, in many cases, the accomplishment of even this palliation was accompanied by costly, recurrent hospitalization. Surgical correction of cardiovascular defects has changed the outlook for many of these youngsters from one of chronic illness to one of normal existence. We are deeply indebted to early investigators too numerous to mention, but special impetus has been given this surgery by men and women such as Gross, Crafoord, Brock, Potts, Taussig, Blalock, Lewis, Lillehei and Varco. Accomplishments in our institution and in others have been the result of remarkable co-operative enterprise stimulated by gratifying successes, but probably even more by repeated failures and apparently insoluble frustrations. Such integrated investigation has made it possible for us to speak to you about the successful surgical treatment of certain types of congenital heart disease in infants and children.

Report of Cases

The following cases illustrate causes for cardiac disability in infancy and childhood with some of the events leading to their surgical correction and return of these youngsters to a normal life.

Case 1.—After an uncomplicated prenatal course and delivery, this infant, who weighed 8 pounds, 4 ounces, at birth, was noted to breathe rapidly and to have tachycardia. The examining physician could not hear any heart murmur. X-ray examination of the thorax revealed cardiac enlargement. The child was lethargic and a persistent cough had developed. The family history was noncontributory. When seen at the Mayo Clinic, at the age of two and one-half months, the infant was noted to be well developed, without cyanosis but with a respiratory rate of 70 per minute and tachycardia measuring 168 per minute. The heart was enlarged; a palpable thrill was noted over the precordium and a systolic murmur maximal in the left fourth interspace. The second pulmonic sound was accentuated; femoral pulsations were good, and the electrocardiogram suggested biventricular hypertrophy. An x-ray examination of the thorax showed cardiac enlargement. The results of urinalysis were normal. The value for hemoglobin was 9.7 gm. per 100 cc. of blood and the results of other blood studies were normal.

Digitalization of the child resulted in partial abatement of the symptoms of congestive heart failure. Cardiac catheterization studies were done and revealed greatly elevated pressures in the right ventricle and pulmonary artery. A striking increase in oxygen content of blood from the pulmonary artery over that from the right ventricle was noted. Arterial oxygen studies gave normal results. On the basis of these studies a patent ductus arteriosus with a large shunt was concluded to be responsible for the child's congestive heart failure and surgical closure of the patent vessel was advised. At the time of operation, the diameter of the short patent ductus arteriosus exceeded that of the aorta, but division and closure were accomplished without incident.

The infant's postoperative course was uncomplicated. Cardiac enlargement receded and the administration of digitalis was discontinued after two weeks. The baby was recently seen at the age of one year, at which time he was noted to be a big, healthy child. Murmurs were not

Read at the meeting of the Southern Minnesota Medical Association, Albert Lea, Minnesota, September 12, 1955.

From the Section of Surgery and the Section of Pediatrics, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

heard and the size of the heart at this time was considered normal. This child now has a completely normal cardiovascular system and normal life expectancy.

Comment.—We are indebted to Gross for his successful closure of a patent ductus arteriosus in 1939. The case we have just presented is interesting in that congestive heart failure had developed within the first few weeks of the infant's life. A patent ductus is often well tolerated in childhood, but usually causes progressive trouble in ensuing years. The diagnosis of this abnormality may be relatively easy when the classical clinical picture is present. As in the case presented, however, the picture may be confusing and will tax the diagnostic acumen of all concerned with the problem. This infant presented a problem of congestive heart failure in the early weeks of life. We have learned that common causes of such a disability include patent ductus arteriosus, coarctation of the aorta, fetal endocardial sclerosis, ventricular septal defect and, rarely, atrial septal defect. We must always weigh carefully our plans for complicated diagnostic studies because even these carry some risk in these sick children. However, now that many congenital cardiovascular defects can be cured by surgical measures, and since the operative technic varies with each case, it is extremely important that an accurate preoperative assessment be made. Although cardiac catheterization studies are not necessary in most patients with patent ductus arteriosus, this case illustrates how valuable such studies can be. In addition to furnishing accurate information about location and size of shunts, such studies alert the surgeon to the presence of other abnormalities. For these reasons, the risk of cardiac catheterization in these sick infants can be justifiably assumed.

The surgical treatment of patent ductus arteriosus is very satisfactory. Ideally, surgeons prefer to operate on these patients when they are between the ages of three and ten years but, as in this child, indication for operation may be compelling at any time after birth. The results of such surgical treatment are extremely gratifying. Under ordinary circumstances, closure of the patent vessel can be accomplished with a risk of 2 per cent and we would recommend operation in practically all situations.

Case 2.—The mother of a girl who was first seen at the clinic at the age of six years stated that the child had been known to have a heart murmur since the age of six months. She was always behind the other children of her age, tired easily and had had intermittent bouts of fever but no cyanosis. For the next five years the child was seen at intervals and, except for some shortness of breath on exertion and intermittent bouts of fever, she made fairly satisfactory progress. She was, however, a very small, thin little girl. Cardiac catheterization was done at the age of ten years and these studies confirmed the presence of an atrial septal defect. It was concluded from the dye curves and saturation data that there was a left-to-right shunt of about 50 per cent of the child's blood flow. The roentgenogram of the thorax revealed cardiac enlargement and a shadow cast by a prominent pulmonary artery. Because of the cardiac enlargement, large shunt of blood flow and the presence of symptoms, closure of the atrial septal defect was advised. Surgical exploration revealed an atrial septal defect approximately 4 by 2 cm. in size. Though present in other regions, there was no septal remnant in the vicinity of the inferior vena cava orifice. The defect was closed, with a piece of polyvinyl-formal sponge (ivalon sponge), the exposure being by the atrial well technic proposed by Gross. The child's postoperative course was uneventful and when she was seen a year later she had gained 39 pounds and her exercise tolerance was normal. No murmur was heard and her general examination revealed nothing abnormal. Cardiac catheterization studies were reported 10 weeks postoperatively and indicated a normal cardiovascular system.

Comment.—Atrial septal defects are among the commonest congenital abnormalities of the heart. In 1875, Rokitansky presented a description of the types of atrial septal defects and provided a challenge for subsequent embryologic research. Through the years, any attempt to describe accurately the anatomic variations of these interatrial communications has been considered to be of academic interest only. As illustrated by the case we have just presented, however, operative repair of atrial septal defects is feasible and the problems of surgical repair demand a precise knowledge of the anatomic variants of interatrial communications. A classification of these communications has been presented previously,[1] but we would like to emphasize that the defect may involve any part of the interatrial septum. Depending on its size and position, there may or may not be a complete septal rim around the defect. Associated abnormalities of the heart may be present and common among these are congenital anomalous pulmonary venous connections of the lungs.

The diagnosis of an interatrial communication may be made on clinical grounds. However, study by cardiac catheterization is indicated for all patients whose condition is so diagnosed and who are being considered for operation, to aid in locali-

zation of the defect and in calculation of the total blood flow passing through the shunt. Associated anomalies of the heart also may be noted.

In the early phases of our surgical experience with this malformation, we advised operation only for patients with significant disability. Experience has shown the risk of operation to be surprisingly low, and in our series of 60 patients with atrial septal defects and left-to-right shunts who underwent operation, there have been three deaths, a mortality rate of 5 per cent. The results of closure of these defects are often dramatic.

At present, the evidence suggests strongly that the risk of operation is much less than the risk of keeping an atrial septal defect. For this reason, we advise operation in most cases.

Case 3.—A boy first seen at the clinic at the age of four years had been known to have a heart murmur since birth. He had always been dyspneic on slightest exertion and complained of frequent pains in his thorax. Cyanosis had never been noted. He could not keep up with other children and preferred games in which he could remain sitting. At the time of examination the boy was noted to be slender and pale. He was 42 inches tall and weighed 33 pounds. Precordial thrill was noted in the second interspace on the left and cardiac enlargement was demonstrated. A harsh, loud systolic murmur was heard in the pulmonic area. The second pulmonic sound was not audible. Along the left sternal border a diastolic murmur was heard which was not continuous with the systolic murmur. Peripheral arterial pulsations were normal. An electrocardiogram revealed right bundle-branch block and left ventricular hypertrophy. X-ray examination of the thorax showed evidence of a large heart with prominent pulmonary trunk segment and some increase in pulmonary markings. Cardiac catheterization was carried out and indicated the presence of pulmonary stenosis and ventricular septal defect. The right ventricular pressure was very high, approximately equal to the systemic pressure, but the shunt of blood flow was from left ventricle to right ventricle.

At operation a typical poststenotic dilation of the pulmonary artery was noted. The stenosed pulmonary valve could be felt through the wall of the pulmonary artery. A strong thrill was noted over the right ventricle. The child's circulation was then taken over by the extracorporeal pump-oxygenator system (Gibbon type). Through a right ventriculotomy incision, a very high ventricular septal defect, measuring about 2 by 1.2 cm., was found. The lesion was so high that it was considered most likely to be a form of partial, persistent, common atrioventricular canal with minimal involvement of the atrial septum. The ventricular defect was closed by means of a small piece of compressed ivalon sponge. The stenosed pulmonary valve was then opened under direct vision. The child tolerated the surgical procedure well and his postoperative course was satisfactory.

The child was seen three months after operation, at which time he had gained 4 pounds. His heart rate was 80. The parents had noticed a striking change in the boy in that he was very active, was happy and participated in the activities of the neighborhood.

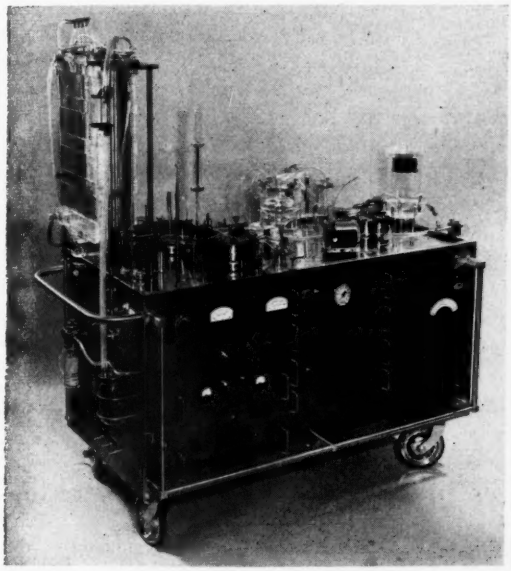

Fig. 1. The mechanical pump-oxygenator apparatus (Gibbon type) for temporary exclusion of the heart from the circulation.

Comment.—For many years it has been the dream of surgeons to be able to visualize intracardiac structures for a sufficient time to permit precise surgical correction of an abnormality, and a variety of methods have been utilized to attain this goal. Cases similar to the one just presented have furnished an urgent need for such surgical technique. The management of this patient with a ventricular septal defect is representative of a method of functional exclusion of the heart and lungs from the circulation of the patient, by means of a mechanical pump-oxygenator system. Other techniques of attaining this end have been employed by other investigators. We have been very pleased with the pump-oxygenator system of the Gibbon type (Figs. 1 and 2) and our clinical experience has been limited to this technique.

At the time this paper was written, twenty-six patients had been operated on by utilizing an extracorporeal circulation of the type described, and fourteen of them were patients with ventricular septal defect. Patients offered this operation to date have been those with symptoms of such severity that their prognosis was considered poor with-

out surgical intervention. During the operative procedures the condition of the patients has been well maintained throughout the period of extracorporeal circulation. As a result, the ventricular

Summary

Patent ductus arteriosus, atrial septal defect and ventricular septal defect are three commonly encountered problems in the management of con-

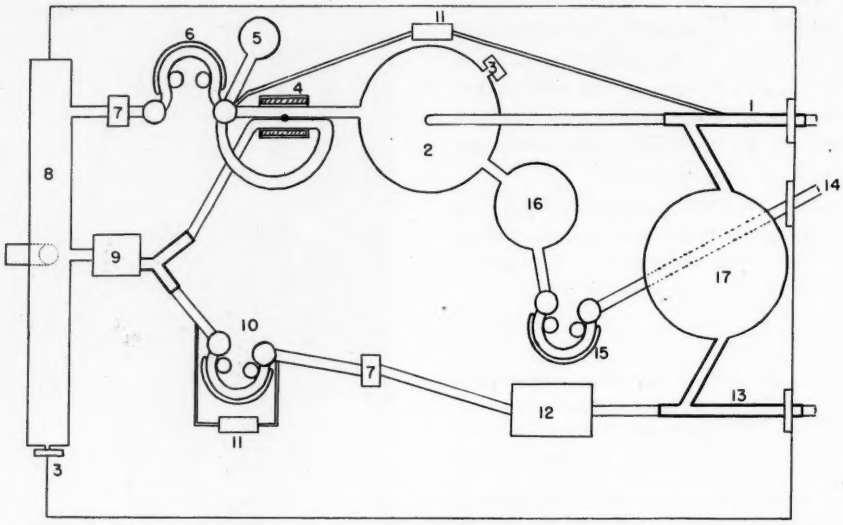

Fig. 2. Schematic representation of the pump-oxygenator system; (1) the venous-inflow line; (2) the venous reservoir; (3) level-sensing devices; (4) occluder; (5) input for the administration of blood and fluids; (6) recirculation pump; (7) high-pressure stops; (8) oxygenator; (9) holder for pH electrodes; (10) artery pump; (11) arterial and venous cuvette oximeter; (12) arterial filter; (13) arterial output to animal; (14) coronary-sinus inflow; (15) coronary-sinus pump; (16) coronary-sinus reservoir; (17) priming reservoir.

septal defects have been visualized and accurately closed in an unhurried and precise manner. Of the fourteen patients with ventricular septal defect on whom this operative technique was used, ten are alive and well. Four patients have died in the postoperative period, but in no case could death be attributed directly to the period or method of perfusion. Actually, postoperative pulmonary complications have been present in all four cases in which death occurred and probably are related to the severe pulmonary hypertension that existed prior to operation.

These surgical successes have demonstrated the value of the technique in which the pump-oxygenator apparatus is used for the treatment of certain cardiovascular abnormalities. This technique, which permits precise, unhurried intracardiac operation, is another valuable weapon for our attack on congenital heart disease. The risk imposed on the patient under these conditions has been reasonable and has encouraged the use of the technique in a greater variety of abnormalities of the heart and great vessels.

genital heart disease in infancy and childhood. The evolution of surgical techniques has made it mandatory that accurate preoperative assessment of the defects be accomplished, and clinical evaluation plus cardiac catheterization studies have provided the surgeon with just such information. With early recognition and surgical treatment, the outlook for infants and children with certain abnormalities of the heart and great vessels has changed from that of chronic illness and recurrent hospitalization with short survival to that of normal life. The use of the extracorporeal pump-oxygenator system in a functional bypass of the heart and lungs enables us to attain that normal existence for more of these children. However, there undoubtedly will continue to be a place for the use of closed and semiopen surgical techniques in the treatment for certain cardiovascular abnormalities.

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Causal and Preventive Aspects of Environmental Cancer

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THE RAPID GROWTH and diversification of industrial activities and products have created during recent decades many new health hazards to producers and consumers, as well as to workers and the general public through occupational and environmental contact with industrial raw products, semifinished and finished goods, and waste products. Industrial and industry-related environmental cancers form an increasingly important segment of this new, artificial disease panorama associated with modern industrialism.

Industrial management and medicine have rather readily responded to the challenge of the relatively obvious acute and chronic toxic aspects of these new developments. They have been, on the other hand, much slower for various reasons in properly appreciating the serious nature and wide scope of the occupational and environmental cancer hazards also connected with industrialization.

General Considerations

A critical analysis of the general principles and special aspects of industry-related cancer-producing agents and cancers may, therefore, be helpful in placing this important problem into proper focus and in providing a constructive approach to a fuller understanding and awareness of and a more active interest in these health hazards which directly or indirectly concern not only industry proper but also industrialized human society as a whole. Industrial cancer hazards tend to spread from basic industries through processing and consuming industries to the general consumer, and may extend to the general population through the medium of environmental pollution of the air, water and soil with industrial wastes and environmental poisons possessing carcinogenic properties.

The discovery of an actual or even of a potential cancer hazard in an industrial establishment produces a serious and not infrequently costly problem to all branches of industrial management. The variety of aspects which arise and demand attention are summarized in Table I.

In addition to the various practical considerations and obligations which arise for industrial management from the discovery of an industrial cancer hazard, there ensue also definite moral duties toward the individuals who become exposed to carcinogenic material within or without the plant area. These are predicated on the fact that industry, like any other part of civilized human society, does not operate in a sociologic vacuum or as a self-contained entity but is an integral and interdependent part of modern mankind. Occupational cancer hazards and cancers, therefore, cannot be considered the sole concern of industrial management, while industry-related environmental cancers are definitely community, if not national, problems of public health.

This concept is based on the following factual evidence which clearly shows the medical-public health as well as economic implications of the existing situation. The number of reported cases of occupational cancers is considerably below the number of cases which have actually occurred. In fact, the great majority of occupational cancers which have occurred during the last two decades in American industries have not been made a matter of public record (Table II). To the number of recognized but unreported cases of occupational cancer must be added the not inconsiderable number of cases whose industrial origin remained for some reason obscure. To this group of occupational cancers doubtlessly belong almost all lesions which affected workers who were once employed and effectively exposed in a carcinogenic operation and in whom cancer developed after a latent period of many years while working for another employer and usually in a noncarcinogenic operation. Since the

From the National Cancer Institute, National Institute of Health, Public Health Service, U. S. Department of Health, Education and Welfare.

TABLE I. INDUSTRIAL MANAGEMENT AND INDUSTRIAL CANCER PROBLEMS

MEDICAL ASPECTS	TECHNOLOGIC ASPECTS	ECONOMIC ASPECTS	ADMINISTRATIVE ASPECTS
1. *Industrial medical aspects* related to the diagnosis, therapy and prevention of industrial cancers and the discovery of occupational carcinogens and carcinogenic operations; organization of a comprehensive medical record system listing precancerous and cancerous manifestations, and the type and duration of employment of all employes; institution of periodic medical examinations of the proper types for all employes coming directly or indirectly in contact with recognized or suspected occupational carcinogens and/or working continuously or intermittently in carcinogenic operations.	1. *Chemical-engineering efforts* for the development of safe production, handling, packaging and shipping of carcinogenic materials.	1. *Determination of policy* regarding promotion, advertising, labeling and sale of products containing carcinogenic agents or of mechanical devices generating them when properly or improperly used.	1. *Establishment of suitable relations* to employes and labor organizations as to information on cancer hazards and their control, medical and hospital expenses incurred, disability caused, fatalities produced, hazard wages, compensation claims, observation of safety measures.
2. *General medical aspects* created by environmental pollution and sale of carcinogenic products and their transportation for noncompany handlers, consumers, neighborhood population and general public.	2. *Sanitary-engineering efforts* for the institution, competent use and strict observation of preventive, protective and prophylactic measures, the maintenance of safety equipment, the safe disposal of carcinogenic wastes, the observation of special precautions during repair and maintenance work and control of accidental contamination of the plant area with carcinogenic material.	2. *Establishment of policies* of duration of employment in carcinogenic operations, of continuation of employment of workers in such operations after the development of precancerous or cancerous lesions (measures influencing rate of labor turnover and productivity).	2. *Maintenance of co-operative relations* with and reporting to governmental health and labor authorities, compensation boards and interstate commerce agencies on industrial-cancer hazards and industrial-cancer cases.
3. *Medicolegal aspects* associated with compensation claims from within and without the industrial concern for the causation or aggravation of cancers by industrial agents.	3. *Periodic or continuous determination* of the presence and concentration of carcinogenic material in the workrooms and plant area: monitoring of workers for carcinogenic contacts.	3. *Consideration of competitive sales position* in the light of increased production costs, compensation and medical expenses, and customers' resistance to properly labeled products.	3. *Processing of compensation claims* for damage to human health, livestock, crops, real property of employees, customers, and residents of the waste-disposal zone by carcinogenic matter; attention to violations of ordinances, regulations and laws pertaining to industrial health and labor standards on occupational and environmental carcinogenic hazards; consideration of legislative measures regarding the control of such hazards and their liability.
4. *Medical research* into the etiology, exposure conditions, diagnosis, therapy and prevention of occupational cancers; development of biologic screening methods for industrial carcinogen.	4. *Research for the identification and determination* of occupational carcinogens, their inactivation and elimination by the devlopment of suitable substitutes of noncarcinogenic nature, development of practicable chemical and/or physical methods for the routine screening of products for the presence of carcinogenic agents.		4. *Handling of public relations* on industrial carcinogens and cancers with newspapers, magazines, radio and television, as well as through the commercial information service with the general public.

TABLE II. OCCUPATIONAL CANCERS RECORDED IN THE UNITED STATES AND FOREIGN COUNTRIES

Up to 1952 (W. C. Hueper)

Agent	Site of Cancer	Number of Cancer Cases in U.S.A.	Number of Cancer Cases in Europe	Total
Arsenic	Skin	7	25	32
Coal-tar pitch	Skin	110	3,150	3,260
Petroleum	Skin	70	29	99
Shale oils	Skin	7	1,900	1,907
Lignite tar and paraffin	Skin	——	14	14
Creosote oil	Skin	1	40	41
Anthracene oil	Skin	——	20	20
Soot-carbon black	Skin	1	190	191
Aromatic amines	Bladder	350-400	1,200	1,600
Roentgen and radium radiation	Skin	?	?	?
	Leukemia	16	13	29
	Lung	——	650	650
Arsenic	Lung	7	16	23
Asbestos	Lung	20	90	110
Chromates	Lung	75	65	140
Nickel	Lung	0	84	84
	Nasal Cavity	0	51	51
	Nasal Sinus			
Coal-tar pitch	Lung	0	53	53
Petroleum	Lung	7	33	40
Benzol	Leukemia	11	31	42
Isopropyl oil	Lung	1	0	1
	Larynx	4	0	4
	Nasal Sinus	6	0	6
Radioactive chemicals	Bones	9	0	9
	Nasal Sinus	3	0	3
Mustard Gas?	Lung		3 (Japan)	3
Total (approximate)		750	7,650	8,400

labor turnover in many of these hazardous industrial operations is rather high, it stands to reason that this group of unrecognized occupational cancers is relatively large and that many of the workers affected by them ultimately become, with their families, wards of community, State and Federal welfare agencies.

Reliable observations made in Canada and in various European and Asiatic countries indicate that occupational cancer hazards exist in other industrial operations and occupations in addition to those mentioned in American reports. In fact, varying degrees of contact with known or strongly suspected occupational carci-

nogens exist for many industries and large worker groups for which, at present, no competent occupational cancer surveys are available, such as the rubber industry, steel and nonferrous-metal industries, dye and organic chemical as well as pharmaceutical industries, petroleum and coal-tar industries, textile industries, plastic, resin and paint industries, and the various branches of the transportation industry (railroads, trucking, aviation). There has been no worthwhile critical analysis made of the possible influence of the widespread use of the host of food additives, pesticides, sprays, detergents with and without dyes, cosmetics and drugs on

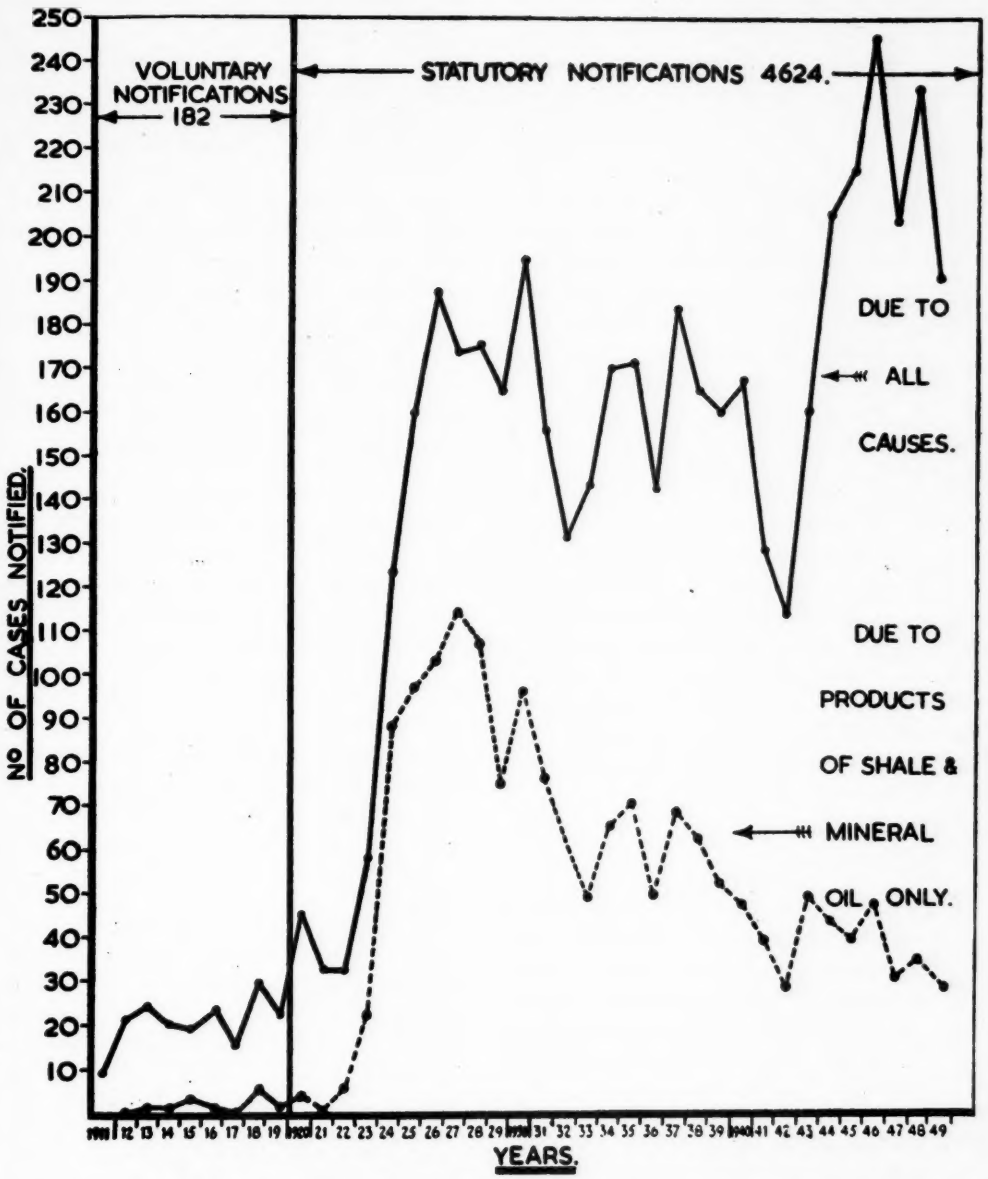
VOLUNTARY NOTIFICATIONS 182
STATUTORY NOTIFICATIONS 4624.
DUE TO ALL CAUSES.
DUE TO PRODUCTS OF SHALE & MINERAL OIL ONLY.
No OF CASES NOTIFIED.
YEARS.

Fig. 1. Graph showing the number of cases of cutaneous carcinoma in male and female patients in England, Wales, and Scotland from 1911 to 1949, inclusive. Note the tremendous increase when reporting of cases was made statutory in 1920. The dotted portion of the graph denotes the number of cases contributed by shale oil and mineral oil only.

the environmental cancer panorama. It is only in recent years that pollution of the air, water and soil by industrial agents has seriously been considered as a possible cause of cancer.

It is mainly through this lack of proper awareness and reporting of existing and possible but unexplored environmental cancer hazards that the erroneous impression prevails in some circles that industry-related carcinogens are of minor importance, not only as an industrial health problem but also as a significant part of the general cancer problem. The introduction of statutory notification of all precancerous and cancerous lesions attributable to or suspected of occupational origin would greatly improve our highly defective epidemiologic records. The evident effectiveness of this procedure is strikingly demonstrated by a graph (Fig. 1) prepared by Henry[1] showing the number of cases of cutaneous carcinoma in male and female patients in England, Wales and Scotland notified before introduction of statutory notification and subsequent to it.

A second source of an incorrect evaluation of the importance of industrial cancers as an industrial health problem is related to the prevailing concept that these cancers contribute little to absenteeism. If the period of absence from work would be calculated not on the basis of the actual lifetime of the cancer victim but for his presumptive life expectancy, which is shortened by a precocious death from cancer, occupational cancers would acquire a much higher rating as causes of absenteeism than that with which they are charged at present.

It follows from these facts and considerations that industrial management and medicine are faced with several tasks for eliminating or containing industrial and industry-related, environmental cancer hazards and for devising means for preventing the future introduction of new ones. It seems to be wise and justified to discontinue the production and use of any agent which has been shown to cause cancer in man, if such an agent is not essential to human welfare and needs and, especially, if it does not serve any useful purpose. Any carcinogenic agent, even when essential and useful, should likewise be eliminated from the human environment, if an adequate noncarcinogenic substitute is available or can be developed and if the use of such a substitute is compatible with our present economic structure. Since a considerable part of the presently known industrial carcinogens forms an integral part of the products of our industrial economy and, therefore, cannot totally be eliminated, occupational and environmental exposure to them should be reduced by technologic methods to the lowest technically practicable level, because there is no reliable information available as to the minimal effective carcinogenic dose of any of the recognized industrial agents. Their degree of toxicity cannot be used as a guide in such matters, since there does not exist any parallelism between the toxic properties and the carcinogenic potency. It is well established, on the other hand, that the carcinogenic dose, as a rule, is well below the chronic toxic dose.

Industrial management and medicine would also be well advised to support the development of reliable and practicable chemical, physical or bio-assay screening procedures for the determination of potential carcinogenic qualities in existing and future chemical agents. The urgency of this appeal is attested by the fact that there exist a large number of chemicals capable of producing cancers in experimental animals and providing frequent and, in part, intensive contact, not only with large occupational groups but also with considerable portions of the general population. One American petroleum company, during recent years, has pioneered research on physicochemical methods for the discovery of carcinogenic oils. The demonstration of marked carcinogenic properties during chronic toxicity tests prevented the release of styryl 430 as a trypanocidal agent and of 2-acetylaminofluorene as an insecticide. On the basis of similar evidence, various chemicals employed in the processing, coloring and preservation of foodstuffs have been barred or removed from the list of permitted food additives in this country and abroad (thiourea, thioacetamide, butter yellow, dulcin, light green SF). The production and industrial use of 4-aminodiphenyl as a rubber and antioxidant were recently discontinued in England and the United States because this chemical produced bladder cancers in man and dogs and intestinal and breast cancers in rats. The manufacture of beta-naphthylamine has been stopped in England, Switzerland and Germany by the industries concerned without any legislative pressure.

While the evidence supplied by experiments on animals provides suggestive, but not conclusive, information on the potential carcinogenic action of a particular agent in man, these data, nevertheless, give distinct warnings as to the indiscriminate use of such agents in the human environment. The general principle has been adopted to consider any chemical, which is able to cause cancer in any species when given by any route and any dose, as carcinogenic to man until shown to be innocuous.

It is obvious that the complex nature of the occupational and industry-related cancer problem as well as of the execution of an effective control program necessitates close cooperation between industry and the medical profession. A recent statement by Dr. Curphey, chairman of the Council Committee on Public Health and Education of the Medical Society of the State of New York, may appropriately be cited in this connection:

"The harmful effects of such agents could be reduced by encouraging free exchange of information and scientific knowledge between industries and the medical profession rather than by attempting to hide facts or by actively or passively resisting the efforts of outside scientific investigators because of the fear of facing legal responsibility for compensation of the diseased worker."[2]

Medical Aspects

The first and fundamental step for the institution of practicable and effective primary cancer prevention rests on the discovery and identification of the carcinogenic agents or the specific conditions of exposure associated with the development of cancers. Since Pott, in 1775, described the first occupational cancer—namely the scrotal cancer in chimney sweeps due to an exposure to coal soot, practicing physicians, especially internists, surgeons and industrial physicians, can claim exclusive credit for having advanced our knowledge in the field of industrial and industry-related cancers. During the last fifty years, their efforts have been particularly rewarding, because the great majority of industrial carcinogenic agents, carcinogenic industrial operations and cancers have been placed on record during this period. These developments may well serve as a stimulus to the medical profession to continue and intensify its efforts in this field, because epidemiologic data on the relative frequency of cancers of various sites available for different large and small worker groups indicate that evidently only a few of the actually existing industrial carcinogens have been recognized. The recently reported excessive frequency of cancer of the lung among English boiler scalers, grain dockers and iron-ore miners provides additional suggestive evidence in this direction. Observations of similar import relate to the excessive rates for lung cancer found among members of several circumscribed groups of workers having contact with various known respiratory carcinogens (Table III).

TABLE III. OCCUPATIONAL GROUPS WITH EXCESSIVE INCIDENCE OF LUNG CANCER

Occupational Group	Potential Respiratory Carcinogens
Metal workers, welders, metal grinders and polishers, wire makers, tool and die makers, foundry workers, metal moulders, lathe workers, etc.	Metal dust, lubricating oil mist
Cigar manufacturers and tobacconists	Tobacco dust, insecticides, soot
Engineers, mechanics, machinists, plumbers, etc.	Metal dust, soot, lubricating oil
Painters, decorators	Metal pigments, coal-tar dyes, carbon black, asphalt paints, solvents, vehicles (lacquers, resins, synthetic plastics).
Tar workers, road workers, asphalters, paviours, stokers, patent-fuel workers, furnace men, foundry laborers, rollers, etc.	Tar and pitch fumes and dust, soot

Industry-related factors most likely play a role in the recorded differences of mortality rates from cancer in different states of the United States, different parts of the same state, and between metropolitan areas and small towns. Additional evidence favoring an influence of industry-related factors on cancer frequency rates is derived from the recently observed rise in lung cancers and leukemia and the shift in age distribution of cancers of the skin into younger age groups of both male and female white patients.

Similar shifts into younger age groups are characteristic for many occupational cancers affecting different organs, including the skin. This development is in part due to the fact that the average latent period of occupational cancers is apparently shorter than that associated with cryptogenetic cancers because of the usually greater intensity of exposure prevailing under occupational conditions. Another factor influencing this shift in age distribution is apparently represented by the age at entrance into a carci-

nogenic occupation, since the age at manifestation of industrial cancers seems to be directly related to the age at entrance into the hazardous occupation.

Exposure times adequate for the production of occupational cancers vary markedly with the potency of a particular agent and the degree and route of contact with it. Additional factors of importance in this respect are the tendency of an agent to be retained over long periods within the body (depot effect), to be rapidly excreted or metabolically inactivated, or to produce permanent and significant alterations in the tissue constituents, even after a single brief exposure (ionizing radiation effect). The occurrence of leukemias among the survivors of the atomic-bomb explosions in Japan furnishes an example of the last-mentioned type of exposure time, while the long-delayed development of skin cancers in persons who have contact with certain petroleum products provides an illustration located on the other extreme of this scale.

To be effective, contact with occupational carcinogens does not need to be continuous; it is often intermittent and may cease many years before the appearance of the cancer. There are often no bridging symptoms connecting the changes which may develop during or soon after exposure to a carcinogen starts and those which may appear and precede or be associated with the subsequent delayed appearance of the cancer. Reliable observations indicate that the length of exposure time may be much shorter than the latent or preparatory period. It follows from these experiences that preventive measures, to be maximally effective, must be applied during the early part of the exposure period, if not before actual exposure starts. After an effective exposure once has taken place, local removal of any precancerous lesions affords, at best, a mild degree of protection and often does not prevent the ultimate development of cancer, even when continued contact with the carcinogenic agent was stopped with the first appearance of precancerous manifestations.

Some of the occupational cancers are associated with characteristic warning symptoms or precancerous lesions, such as melanoderma, leukoderma, hyperkeratosis, cutaneous atrophies, chronic dermatitis, warts and papillomas following exposure to coal-tar products, petroleum oils, shale oils, arsenicals, ultraviolet radiation and ionizing radiation, hemorrhages, angiectases, polyps and papillomas of the bladder mucosa after exposure to aromatic amines, leukopenic and leukemoid reaction following contact with benzol and ionizing radiation, chronic radiation periostitis and asbestosis, whereas other occupational cancers do not elicit symptoms which may serve as stigmas of carcinogenic exposure of specific types. Some occupational cancers develop from these benign hyperplastic and neoplastic precursor lesions, whereas others appear de novo within the exposed tissues. At times such developments appear to occur very rapidly from an organic matrix which seemed to be free from any abnormalities only a few months previously. Thus, relatively advanced cancers of the bladder have occasionally been seen in dye workers who seemed to have a normal bladder only six months previously on cystoscopic examination. Similar observations were made in regard to the appearance of lung cancers in chromate manufacturers having an apparently normal roentgenogram of the thorax six months previous to the discovery of a lung cancer of definite proportions.

Although such experiences do not represent the rule, they nevertheless show that medical examinations performed at six-month intervals do not provide a precautionary procedure guaranteeing an early discovery of occupational cancers. For this reason, it seems wise to perform periodic medical examinations at intervals shorter than six months, particularly in those exposed workers who are approaching the end of the usual latent period. It is obvious that only long-term workers are appreciably benefited by the limited protection afforded by periodic medical examinations. Workers who, after an effective exposure, leave a hazardous operation for other employment run an uncontrolled risk of cancer development unless they are properly warned as to the possibility of cancer formation during subsequent years.

Because of these and other difficulties in providing adequate protection against the development of occupational cancers by medical means, it is advisable to supplement medical measures with a selective employment policy. On the basis of existing industrial medical experience, Negroes have been found to be more resistant to the carcinogenic action of coal tar,

petroleum oils and ultraviolet radiation than are white persons, especially those who are fair complexioned and freckled. Colored workers might best be selected for employment in operations in which contact with these carcinogenic agents is unavoidable. Considering the fact that the occurrence of bladder cancers in dye and rubber workers has been traced to the presence of carcinogenic chemicals excreted with the urine, persons who may have conditions which might interfere with an unimpeded excretion of urine, such as hypertrophy of the prostate, strictures of the urethra and ureters, renal stones, diverticula of the bladder and vaginal prolapse of the bladder, should be excluded from employment in operations having this cancer hazard. It does not seem to be wise to accept persons with chronic inflammatory conditions of the lung, such as bronchiectasis, for employment in work entailing contact with respiratory carcinogens. Whenever practicable, only older persons should be employed in carcinogenic operations, because even if an effective exposure should take place, there is a good chance that their normal life expectancy may not cover the average latent period.

Although the great majority of occupational cancers have occurred in men for reasons of employment of men in such operations, there is no valid evidence indicating that men are more susceptible to occupational cancers than are women. Female luminous-dial painters experienced osteogenic sarcomas and carcinomas of the nasal sinuses; cancer of the lung was only slightly less frequent among female asbestos workers than among male workers, while the entrance of female cotton spinners in English plants was followed by the appearance of cancers of the exposed skin and vulva among the female employees, who thus showed the anatomic equivalents to the scrotal cancers noted for many years among the male mule spinners.

Whenever occupational exposure to industrial carcinogens was intense and uncontrolled, these agents have demonstrated their high carcinogenic potency, which is reflected in the markedly elevated cancer attack rates found among the populations at risk. These observations suggest that cancer hazards may exist for susceptible individuals employed in operations in which the same carcinogenic exposures prevail in an attenuated form.

It can definitely be stated that chemicals which are carcinogenic in the industries of one country or in one particular industrial operation possess the same properties for the industries of another country and for other industries, provided that similar or identical conditions of exposure exist. The spread of occupational bladder cancers in dye workers through different countries approximately fifteen years after establishment of large-scale dye production provides a striking illustration of this dogma. It is also certain that agents which cause cancer in man when used for medicinal purposes, such as trivalent arsenicals, have the same effect when coming in contact with man as environmental carcinogens in the form of industrial water pollutants or as occupational carcinogens during the smelting of arsenic containing ores or during the production and use as insecticides. Conversely, agents which are carcinogenic in industrial operations, such as coal tars, shale oils or ultraviolet radiation, do not lose this property when employed for therapeutic purposes.

In the discovery and management of industrial-cancer hazards, proper appreciation must be given to the fact that the target organ or tissue for a particular carcinogen may vary with the route of primary contact and with the physicochemical status of the agent. Thus, the same industrial carcinogen may elicit cancers in different organs under differing conditions of exposure. Cutaneous contact with radioactive material results in carcinomas or sarcomas of the skin; ingestion may cause osteogenic sarcomas, intravenous injection may cause cancers of the liver or lung, inhalation of dust or gases may cause cancer of the nasal sinuses or lung, and total body exposure may cause leukemia.

Summary

The facts and considerations presented indicate that effective control of industrial and industry-related cancers depends on competent and harmonious teamwork among industrial management, industrial chemists, physicists, industrial engineers, sanitary engineers, physicians, workers and the general public. It will mainly be the task of the physician, for the time being, to be on the alert for occupational

(Continued on Page 22)

Problems in Clinical Diagnosis and Classification of Ventricular Hypertrophy in Adults

1. Idiopathic Left Ventricular Hypertrophy

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CARDIAC enlargement has been recognized clinically and at postmortem for about 300 years.[1] The vast majority of cases of cardiac hypertrophy are associated with a recognized cardiovascular disease, such as hypertension, valvular disease or congenital heart disease. Nevertheless, there remain a small number with enlargement of obscure cause.

It is the purpose of this series of three papers to discuss three distinct types of cardiac hypertrophy occurring in adults and presenting difficult problems in diagnosis and classification. The three groups comprise instances of (1) predominant left ventricular hypertrophy, (2) isolated right ventricular hypertrophy and (3) the entity that has been designated as "familial cardiomegaly."

This first paper deals with two cases of left ventricular hypertrophy of unknown cause.

Report of Cases

Case 1.—A forty-year-old white man was seen in February, 1947, because of nocturnal dyspnea and orthopnea of six months' duration. When the patient was eight years old, a physician heard "extra beats," and "leakage of the heart" was suspected. Past illnesses included pneumonia at the age of twelve and right pleural effusion at twenty-five, requiring thoracenteses. In 1940, an inguinal hernia was repaired. He stated that his blood pressure had always been normal. In 1945, he was rejected by the Army, presumably because of cardiac enlargement. He drank large amounts of wine, on occasion consuming as much as one quart of muscatel during an evening. Nevertheless, he worked for the same company for nineteen years, starting as a manual laborer and later holding a responsible position as a machine operator. The family history failed to reveal evidence of cardiovascular disease.

Examination revealed a well-nourished, muscular man 73½ inches tall and weighing 206 pounds. His skin was sallow but showed no stigmata of vitamin deficiency. Funduscopic examinations, carried out several times during the three years he was studied, failed to show evidence of hypertensive changes or other abnormalities. Pertinent findings consisted of moderate abdominal obesity and cardiac enlargement. On percussion, the left ventricular border reached the left anterior axillary line in the sixth interspace. There were no murmurs. The aortic second sound was not accentuated. Heart tones were rather distant considering the patient's body build. The pulse was regular. Numerous determinations of blood pressure were normal on the initial and subsequent examinations. Systolic readings ranged from 140 to 128 mm. of mercury, with a diastolic range from 78 to 90. Usual levels were approximately 128/85. Blood pressure in the two arms was equal. Pulsations in the femoral and brachial arteries were normal. No evidence of congestive heart failure was found on the first examination.

The value for hemoglobin was 15 gm. per 100 cc. of blood (Sahli); erythrocytes numbered 5,100,000 per cubic millimeter of blood, and the leukocyte count was 8,950; a differential count was normal. The sedimentation rate was 10 mm. in one hour (Westergren); a Kline test gave negative results. The basal metabolic rate was minus 17 per cent. Serum cholesterol measured 295 mg. per 100 cc. Radiologic studies by means of fluoroscopy and 6 foot films revealed moderate left ventricular enlargement and slight right ventricular enlargement. Cardiac pulsations were normal. The electrocardiogram showed left axis shift, slight ST depression in standard lead I, and increased voltage of R in lead I and S in lead III.

Therapy consisted of a moderate weight reduction diet plus adequate supplements of vitamin B complex. Because of the slight elevation of serum cholesterol and the low basal rate, a therapeutic two-month trial of thyroid extract was given without benefit. Subsequent basal rates were all considered questionable because of the patient's claustrophobia.

To rule out antecedent hypertension, this patient's former physicians were contacted. Determinations of blood pressure at the age of twenty-five and again at thirty-three were available, as well as a few since that time; all were normal. Army records were unavailable. Coronary sclerosis was deemed unlikely because of the absence of angina pectoris, and myxedema and beriberi were ruled out by therapeutic trial.

From February, 1947, until his death in December, 1949, the patient ran a slowly progressive downhill course, although he was able to continue doing light work until January, 1949. Digitalization, a low-sodium diet and mercurial diuretics were needed to control left

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heart failure. Rapid deterioration in his cardiac status occurred in January, 1949, with increase in cardiac size and beginning right heart failure. Dr. George E. Fahr saw the patient at this time and concurred in the diagnosis of left ventricular hypertrophy of unknown cause

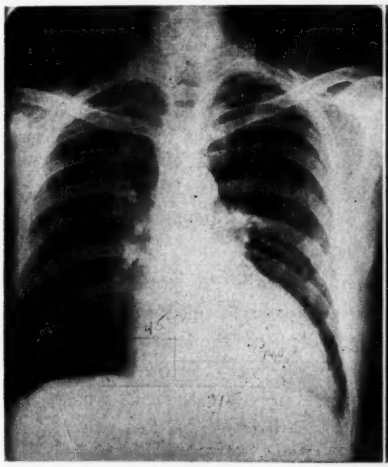

Fig. 1. (Case 1.) Thoracic roentgenogram taken in February, 1949, shortly after rapid deterioration of the cardiac status had occurred.

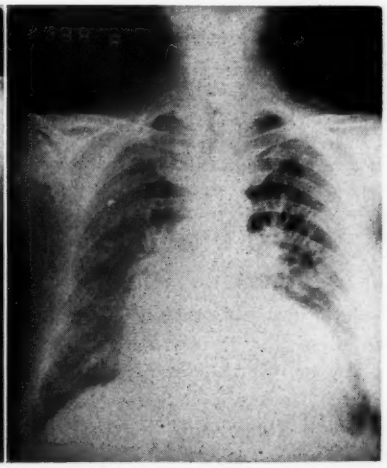

Fig. 2. (Case 2.) Thoracic roentgenogram shortly before death.

(Fig. 1). Prolonged periods of rest in bed were necessary in 1949 but did not halt the downward course. Auricular fibrillation and pulmonary infarction developed in November, 1949, when the patient was hospitalized. Death occurred in December, 1949, from congestive cardiac failure. The antemortem diagnosis was left ventricular hypertrophy of unknown cause.

Necropsy was performed by Dr. Kano Ikeda. The heart weighed 920 gm. The epicardial surface was smooth and glistening. There was gross dilatation of all the cardiac chambers. The myocardium of the left ventricle was 1.5 to 2 cm. in greatest thickness and was pale, cloudy and reddish brown, with no gross areas of fibrosis or infarction. A large mural thrombus 3 cm. in diameter was tightly adherent to the posterior wall of the left ventricle, interspersed among the papillary muscles. There were, likewise, multiple smaller mural thrombi scattered through the papillary musculature of the remainder of the left ventricle. The right ventricle was dilated and the wall measured up to 12 mm. in thickness. The valves showed no abnormalities. The pulmonary artery was markedly dilated. The root of the aorta showed a smooth intimal surface with only a very few streaks of subintimal atheromatous thickening. The coronary arteries were widely patent and freely pliable; they showed only a very slight amount of atheromatous thickening in their proximal portions.

Microscopic sections of the myocardium showed interstitial edema and hypertrophy of the muscle cells. The thrombus of the mural endocardium of the left ventricle exhibited organization. Microscopic study of the kidneys failed to show evidence of nephrosclerosis.

Other findings at necropsy were multiple pulmonary infarcts with pulmonary congestion and edema, chronic passive congestion of the liver and spleen, bilateral pleural effusion and ascites, multiple renal infarcts, and multiple petechiae and small ecchymotic areas involving the skeletal muscle, subcutaneous tissue and subserosal fat, as well as the areolar tissue of the mediastinum.

Case 2.—A fifty-five-year-old white man died in December, 1952, of congestive heart failure. Shortness of breath and constrictive thoracic pain on exertion had begun sixteen years previously following hemorrhoidectomy. At that time, an electrocardiogram showed complete left bundle-branch block. Digitalis was administered. Examination disclosed pronounced left ventricular hypertrophy, the x-ray silhouette being that of a boot-shaped heart (Fig. 2). One roentgenologist commented that it was unusual to have such minimal changes in the aortic arch as compared with the size of the heart. The blood pressure was normal on all examinations throughout the sixteen-year period preceding his death, usual readings being in the neighborhood of 120/80. In 1948, a pressure of 140/90 was obtained during a hospital admission for bronchitis. Heart murmurs were not heard, and the clinical diagnosis was coronary sclerosis with left ventricular enlargement, congestive heart failure and angina pectoris. Numerous physicians examined this patient during the course of his illness, and in 1951 he was examined at the Mayo Clinic, which reported normal blood pressure. Regular examinations had been performed for years, since the patient was a railway employe.

Necropsy was done by Drs. Kano Ikeda and C. Jarvis. The heart weighed 700 gm. The epicardial surface was smooth. The myocardium was flabby and light reddish brown. All chambers of the heart were markedly dilated. The right and left auricular appendages each contained moderately firm, reddish-brown thrombotic material. The remaining mural endocardium was smooth. The valves were normal. The coronary arteries were thin-walled, pliable and patent. A few

scattered streaks of atheromatous thickening were present in the root of the aorta.

The aorta was smooth with the exception of a calcified atheromatous plaque located just above the bifurcation. There was no coarctation.

Microscopic sections of the heart showed small patches of fibrosis, myocardial edema and hypertrophy of the muscle fibers.

Sections of the kidney showed scattered foci of lymphoid-cell infiltration and a few hyalinized glomeruli. There was no evidence of nephrosclerosis.

The pathologic anatomic diagnoses were idiopathic hypertrophy of the heart with dilatation, mural thrombi in both auricular appendages, chronic passive congestion of the lungs and liver, old infarction of the kidneys, pulmonary edema and prostatic hypertrophy.

Comment

In 1901, Josserand and Gallavardin[2] were the first to describe idiopathic hypertrophy of the heart. Excellent reviews of the adult cases have been made by Levy and Von Glahn,[3,4] Levy and Rousselot,[5] and Norris and Pote.[6] Levy and Von Glahn reported ten cases of cardiac hypertrophy of unknown cause, eight in men and two in women. All were distinguished by a relatively short clinical course of from ten days to five years, without antecedent infection and with the primary symptoms of myocardial insufficiency. Angina was conspicuous by its absence (in contradistinction to our Case 2). At necropsy, all showed absence of advanced coronary sclerosis, but two cases showed extensive fibrosis. Necrosis of the heart muscle was present in four. A question thus arises whether the presence of fibrosis did not signify pre-existing myocarditis (if generalized) or coronary insufficiency (if mainly subendocardial). Myocarditis was also possibly implicated in two of the four cases reported by Norris and Pote.[6]

The possibility of antecedent hypertension has been explored by a number of investigators. Davis and Blumgart[7] stated:

> "To rule out the existence at any previous time of arterial hypertension is always difficult since fluctuations in blood pressure in this condition always render it theoretically possible that the blood pressure may have been elevated prior to the first recorded physical examination or between the various examinations listed."

Kaplan and associates[8] studied the arterioles of the kidney and adrenal in forty-three cases of congestive heart failure with predominant left ventricular hypertrophy of unknown origin and noted that 30.9 per cent had mild or severe renal arteriolosclerosis. Of 269 patients without hypertension, 12 per cent showed renal arteriolosclerosis that bore a relationship to their age. Of 154 patients with essential hypertension, 82.5 per cent dying in congestive cardiac failure showed renal arteriolosclerosis. These authors concluded that, although the role of antecedent hypertension cannot be excluded in the individual case of hypertrophy of the left ventricle of unknown cause, its absence in the majority of these cases seems likely. In a similar study, Ferris[9] found that renal and pancreatic arteriolosclerosis was present at necropsy in 40 per cent of fifty cases of left ventricular hypertrophy of undetermined cause.

Clawson,[10] on the other hand, has a different concept of the cause of this condition. Hypertension was absent in 5 per cent of his very large necropsy series of cases of "hypertensive" heart disease. If, however, a diastolic level of 90 mm. of mercury was chosen to separate hypertensive from nonhypertensive patients, very few remained in the nonhypertensive group.

Pertinent to the present discussion of possible etiologic factors in cardiac hypertrophy is the injury theory of hypertrophy, first propounded by Horvath[11] as early as 1897. According to this hypothesis, hypertrophy from whatever stimulus is due to stretching muscle fibers beyond the normal. Work and hypertrophy are both considered results of the stretching.[7]

Albrecht,[12] in 1903, described histologic evidence of muscle injury preceding hypertrophy and believed that hypertrophy was due to disturbance of normal cardiac nutritional requirements. Eyster's experiments[13,14] were most interesting and provocative. Aortic stenosis was produced by application of rubber bands in dogs until maximal dilatation resulted (usually on the third to sixth day). The bands were then removed in half the animals but allowed to remain in the other half. The hypertrophy that ultimately developed in both groups was comparable. Hypertrophy was considered a reaction to injury brought about by the sudden dilatation. Davis and Blumgart's work[7] on the relationship of coronary arteriosclerosis and congestive failure to cardiac hypertrophy favors the injury theory of Horvath. Little or no hypertrophy was present with lesser degrees of coronary sclerosis, but heart weights were con-

siderably above normal in patients with coronary disease and congestive failure. Connolly and Littmann[15] confirmed this work and quoted Fulton's statement:[16] "This increased diastolic volume develops in toxic and inflammatory states and when the blood supply to the muscle is impaired." Further confirmation of the injury theory is found in the experimental production of hypertrophy in rabbits by Katz and associates[17] and by Hurwitz and Friedberg.[18]

Bell and Clawson,[19] Nathanson,[20] Levine,[21] Lisa and Ring[22] and others[23-25] deny the role of coronary sclerosis in the causation of cardiac hypertrophy. Gross and Lisa,[25] in a pathologic study of eighteen cases of left ventricular hypertrophy without a history of hypertension (material obtained from necropsy records alone) and with moderate to severe coronary sclerosis, found renal arteriolosclerosis in each case. They concluded that antecedent hypertension accounted for the cardiac hypertrophy.

The possible role of endocrine and neuroendocrine factors in the production of cardiac hypertrophy was discussed by Raab.[26] The occurrence of marked hypertrophy of the heart without hypertension in certain cases of acromegaly and the experimental production of cardiac hypertrophy in animals by the administration of growth hormone, thyroxin and desoxycorticosterone suggest neurohormonal influences in the causation of idiopathic cardiac hypertrophy.

Summary and Conclusions

Two cases of predominantly left ventricular hypertrophy have been described. Both patients were men forty-three and fifty-five years of age at death. Both died of congestive cardiac failure of three years and sixteen years' duration, respectively. The second patient had effort angina, and his electrocardiogram showed complete left bundle-branch block. A valid etiologic basis for the cardiac hypertrophy was not disclosed by clinical and necropsy studies.

The role of coronary sclerosis, antecedent hypertension and neuroendocrine factors has been discussed in the production of this type of cardiac enlargement. Although no definite conclusions have been reached, it seems wise, meanwhile, to avoid labeling as "hypertensive" those large hearts whose enlargement is of unknown cause. The term "idiopathic" is justified, serving as a stimulus to more profound study of these cases. Final solution of this problem awaits a more nearly complete understanding of the physiology and biochemistry of cardiac hypertrophy.

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A Study of Ruptured Uteri

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RUPTURED UTERUS is undoubtedly the most serious obstetrical complication encountered in medical practice. The present study of that complication was made at a private Minnesota hospital. Interest in the subject was fanned into activity by an unusual, thought-provoking circumstance. Four ruptures and one uterine rent took place between June and November, 1954.

The above statement may give the impression of poor obstetrics, but the total statistics present a different story. These statistics cover the ten-year period from November 1944 to November 1954.

Table I compares four major studies of ruptured uteri with the present private hospital study. The classification of ruptured uteri is divided, for statistical purposes, into three groups. The largest is the post-cesarean section rupture group. Second, the traumatic rupture group, includes those ruptures caused by manipulative procedures and the use of pitocin. The third group is spontaneous rupture due to other (than the above) causes, such as great parity, multiple pregnancies, cervical tears.

The incidence of ruptured uteri to total deliveries is generally considered to be about 1:2000. This table presents the incidence of three groups: (1) charity hospitals—New York, New Orleans and Johns Hopkins; (2) the Minnesota private hospital; and (3) the combined private and charity hospital group of Philadelphia County. The implication is that private hospitals have a lower incidence of uterine rupture due to the smaller number of complicated cases. In our study, the incidence of uterine rupture was unusually low until the four ruptures occurred in the last five months of the study. With five ruptures, instead of nine, the incidence was 1:5400. Two thousand deliveries have occurred since the study, without rupture.

The frequency of post-cesarean section rupture has increased, and the frequency of traumatic rupture has decreased. It is noted in Table I that the four major studies and ours confirm this point. This has been a logical transition, over the years, because of the decreasing risk of abdominal delivery and the relative infrequency of the more difficult vaginal deliveries; such as, mid-forceps, high forceps, and version. The spontaneous rupture group, relatively unaffected by the uses of antibiotics and the changes in techniques, has maintained a constant frequency.

TABLE I. REVIEW OF STATISTICAL STUDIES ON RUPTURED UTERI

Hospital	Period	Deliveries	Ruptured Uteri		Cesarean Section Rupture	Spontaneous Rupture	Traumatic Rupture
			No.	Incidence			
Private Minnesota	1944-1954	29,084	9	1:3232	67.0%	22.0%	11.0%
New York	1932-1946	111,753	57	1:1961	45.6%	36.8%	17.6%
Philadelphia County	1931-1941	318,103	105	1:3029	32.2%	25.1%	42.6%
New Orleans	1913-1950	127,522	96	1:1328	24.0%	30.2%	45.8%
Johns Hopkins	1920-1945	53,574	53	1:1010	18.8%	32.1%	49.1%

Table II presents first, the six post-cesarean section rupture cases. These six ruptures occurred among the 1,021 cesarean sections performed since 1944. Therefore, one in every 170 cesarean sections (0.58 per cent) ruptured. Since there were 29,084 deliveries and 1,021 sections, cesarean sections accounted for 3.5 per cent of the deliveries.

Two of the six cases ended in complete rupture. Both patients had previously had classical cesarean sections.

Four of these six cases ended in incomplete rupture. Two of the patients had had both lower and upper segment sections. One had had two

classicals and one had had a single lower segment section. However, all three low segment sections were vertical, and two of these had had sections through the placental site.

TABLE II. CASE STATISTICS

Mrs.	Age	Gravida	Para	Types	Previous Sections	Gestation	Rupture
L.M.	31	6	3	Post Section	Classical	30 wks.	Complete
D.W.	41	2	1	Post Section	Classical	33 wks.	Complete
J.K.	27	2	1	Post Section	Vertical Low Segment	42 wks.	Incomplete
S.G.	23	3	2	Post Section	Classical	36 wks.	Incomplete
E.R.	33	3	3	Post Section	Classical Classical Vertical Low Segment	30 wks.	Incomplete
L.J.	33	3	2	Post Segment	Classical Vertical Low Segment	38 wks.	Incomplete
F.M.	36	6	5	Traumatic	0	42 wks.	Complete
D.D.	39	6	4	Spontaneous	0	40 wks.	Incomplete
M.H.	37	3	1	Spontaneous	0	41 wks.	Incomplete

No baby lived following complete rupture, but 75 per cent of the babies in the four incomplete rupture cases survived.

Both spontaneous rupture cases had incomplete ruptures into the left broad ligament with severe retroperitoneal hemorrhage.

Only one of the nine ruptured uteri, the case of Mrs. S. G., was amenable to repair. The rupture was small and at the lower part of the upper segment. This patient is now six months pregnant and hospitalized because of ruptured membranes.

Lastly, no case was in labor prior to rupture.

* * *

Rare and complicated cases appear common during the years of specialized training when on an active service. Private practice places the complicated case in its correct frequency. Yet, it is our duty, as private practitioners, to immediately diagnose and intelligently treat these rare complications. Therefore, it seems a review of our cases by groups would be of greatest interest here.

The largest group, spontaneous post-cesarean rupture, comprises six of our nine cases. It is acknowledged that this group is more readily diagnosed than the other types of rupture. It is also acknowledged that not all cases present classical signs and symptoms. Some are simply incidental findings at repeat cesarean sections.

Four of our cases had had histories of circumstances predisposing to uterine rupture and confirmatory signs and symptoms. Three of these had had febrile post-section courses and two had had sections through the placental site at previous abdominal deliveries.

Two of our cases were more complex. The first patient had congenital heart disease with superimposed subacute bacterial endocarditis. She had sudden severe low abdominal pain, nausea and vomiting, and vaginal bleeding at eight months' gestation. X-ray examination showed low placental insertion. The immediate diagnosis was rupture, but fear of the cardiac disability caused delay. Later a cardiologist cast doubt on the diagnosis by insisting that the marked hemoglobin drop was due to subacute bacterial endocarditis. After ten days' delay, the patient went to surgery. An incomplete chronic type of rupture was found, and the baby amazingly survived . . . as did the mother.

The most complicated case was that of Mrs. D.W., a forty-one-year-old para 1-0-0-1. She had a past history of peptic ulcer ten years previously, total thyroidectomy for hyperthyroidism, and classical section three years ago. Her pregnancy was normal up to her last office visit at thirty-two weeks' gestation. She was admitted to the hospital at 11:00 A.M., October 22, at thirty-four weeks' gestation, following sudden onset of coffee-ground emesis and colicky upper abdominal pain. She was pale, toxic looking, had peristaltic movements across a distended upper abdomen and a pulse of 110. Her uterus was eight months' size and cramping moderately. Fetal heart tones were heard in the right upper quadrant. An internist and a surgeon were called in, and their preliminary diagnosis was bleeding peptic ulcer. However, following confirmation by x-ray, small bowel obstruction was considered to be the diagnosis. Therefore, four hours after admission, the patient was taken to surgery. The abdomen was opened, and blood welled out. Instead of an obstructed bowel, the fetus and placenta were directly beneath the incision. The uterus was ruptured from 3 cm. below the bladder reflection through the fundus. The baby was stillborn. Hysterectomy was done.

Two ideas may be beneficially gleaned from the above cases. First, there is need of available and accurate past histories on all post-section patients. The anticipatory histories presented above were not completely obtained until after the emergency, and in some cases, were not obtained until the charts were reviewed for this study. Second, consultants are only a part of the "armamentarium" of the obstetrician. The

former can advise only relative to his field. The obstetrician is the man best qualified to be responsible for the diagnosis and final disposition.

The traumatic rupture group has been distinctly diminished (4). As presented earlier, this is due partially to the increased use of the cesarean section and partially to the decreasing frequency of the more difficult vaginal deliveries. However, of those cases remaining, the diagnosis is just as puzzling and the treatment just as hazardous as before. Maternal and fetal mortality remains highest in this group.

One and one-half of our cases belong to traumatic rupture. The half case is that of a uterine rent. The rent was found at surgery, the second day postpartum, following the delivery of a stillborn. This grandmultipara had painless bleeding but no placenta previa, was stimulated with intravenous pitocin, and dilated with no abnormal contractions. After delivery, only moderate pressure was used to express the placenta. The postpartum course was stormy and identical to a fundal rupture. At surgery, 1300 cc. of blood and a 5-inch rent through the serosa into the muscularis were found. The cause??? . . . undetermined.

The true case of traumatic rupture is that of injudicious use of pitocin. This is an unpredictable drug. Many obstetricians have discontinued or greatly limited its prepartum and intrapartum use.

Mrs. F.M., a thirty-six-year-old gravida VI, had a history of five normal pregnancies, labors and deliveries. Now, again, at term and in early labor, she was admitted to the delivery section. Her progress was normal in spite of an exceptionally flabby uterus and extreme restlessness. She was prepared for delivery, and by 11:00 A.M. the head was 1 plus and dilation almost complete. However, the patient went into secondary inertia, and one minim of pitocin was given. In about five minutes, there was a sudden gush of blood, the patient became increasingly apprehensive, restless, and had air hunger. The fetal head went "way up." Version was elected, the patient anesthetized, and an unusually easy procedure accomplished the version. The patient came out of the anesthesia and appeared normal. However, about nine hours later, following increasing apprehension, abdominal pain and distention, she went into shock. She was taken to surgery, and a tremendous rupture from the anterior cervix to the fundus was found. Omentum filled the rent and only 200 cc. of blood were in the abdomen. Hysterectomy was done.

The last group is the spontaneous, nonsection, rupture group. Diagnosis seems most difficult in this group. First, all the possible extenuating signs and symptoms that occur in the other groups (classical and distorted signs, complete and incomplete ruptures, symptoms indicative of other pathologic conditions) can and do happen here. Add the difficulty of surprise, the lack of anticipation, and we have the crowning complication to diagnosis. Treatment also is thoroughly different and considerably more difficult in this group than in cesarean scar rupture.

Our problem case was Mrs. D.D., a thirty-nine-year-old gravida VI, para III. She was admitted at term following spontaneous rupture of membranes. Spontaneous contractions began at 9:00 P.M., and delivery occurred about three hours later at 11:54. An easy manual rotation, at low station and at complete dilation, was done from ODP to ODA. There was a slight gush of blood following the delivery of the head. The baby was slow to respond and attention was given him. About four minutes later, attention was returned to the patient. The placenta was delivered spontaneously and completely. Bleeding subsided, then became more profuse. Ergotrate was given intramuscularly, the uterus was massaged and lifted out of the pelvis. Intravenous ergotrate was given. Bleeding subsided again. Intravenous fluids had been ordered and were started at 12:20. Also, blood typing and cross matching had been ordered. The patient went into shock. Blood was not available until about forty-five minutes after it was ordered. It was then pumped in under pressure. In the interim, the cervix was observed to be intact, and the vagina was packed. In the excitement of the emergency, however, the uterine cavity was not explored manually. The packing seemed to control the bleeding for a time, and the patient's condition improved; but at no time did the systolic pressure reach 80 mm. Hg. Shortly, blood seeped through the packing, and hysterectomy was ordered. The clinical diagnosis was uterine rupture. Approximately two hours after delivery, the hysterectomy was completed but the patient was *in extremis* and expired. A large retroperitoneal incomplete rupture into the left broad ligament was found. Blood had dissected even as far as the kidneys.

Four major points are especially worthy of comment.

1. Bleeding in excess of 300 cc. is considered hemorrhage. Blood replacement must be ready for this loss — especially in the case of rupture. A minimum of 1000 cc. of type O Rh negative blood must be on hand in the delivery suite at all times. This is to be used until cross matching and typing can occur.

2. Whenever the bleeding is hemorrhagic, a patient shows shock, or a delivery has been done in which injury to the lower uterine seg-

ment could have occurred, the whole of the uterus, fundus and low segment, must be explored for lacerations, retained placenta, and membranes. The cervix must also be explored and inspected. These procedures are essential to establish the diagnosis.

3. Packing the uterus is such a controversial subject that it demands a separate paper. However, Gordon et al. consider it an obsolete treatment.[1] They consider that, worst of all, it gives a false sense of security, causes waste of time while the packing is saturating with blood, and more often than not fills the uterus with blood rather than making it contract. They do consider it useful in the single instance in which the patient cannot be immediately placed in the operating room. The opposite viewpoint—that there is a definite place for packing in the active treatment of ruptured uterus, is held by a number of investigators. Dr. Donald Frazer states, "Where rupture is confined to the lower uterine segment, packing, at times, can be used as definitive treatment."[4] In the case in which exploration does not present a tear, Brierton[5] suggests packing the uterus carefully and waiting to see if bleeding will recur.

4. The decision for hysterectomy is obviously a difficult one. However, when uterine exploration, as presented above, has confirmed the diagnosis, blood and more blood is given as needed, hysterectomy is the only answer. In the very severe cases, clamping the uterine vessels from below (vaginally) is advocated by some men. However, probably the most rapid and surest method of stopping this bleeding is to incise the abdomen (under local), retract the anterior abdominal wall and clamp the aorta above the biforcation. Dr. Kinsella[6] states that this can be done with rubber-tipped vessel forceps without damage to the aorta. He also states that this clamping can be maintained for approximately one hour. Following the clamping, there is ample time to replace the blood loss and bring the patient out of shock before proceeding with the necessary surgery.

In conclusion, I would advocate the use of teamwork. A team is a necessity. One man is needed to administer blood and intravenous fluids. Another is needed as an assistant in surgery. Besides these two, an anesthesiologist, a technician, two nurses and two aids will make up an excellent team. Everything must progress rapidly. A team can save time, show more care, and thus cut down maternal mortality.

Summary

1. Nine cases of rupture of the uterus have been reported. This represents the total number of ruptures occurring in a private hospital during the ten-year period from 1944 to 1954. In this time, 29,084 deliveries were accomplished.

2. Of these nine cases, six represented post-section ruptures, one traumatic rupture, and two spontaneous ruptures.

3. The fetal mortality was 50 per cent in the post-section rupture group. All the surviving babies belonged to the incomplete rupture segment of this group.

4. The post-section rupture group comprised 0.58 per cent of the 1,021 cesarean sections done in this hospital in the ten-year period.

5. There was one maternal mortality in the nine cases. This followed in the spontaneous rupture group.

6. These case studies should stress several important principles in diagnosis and treatment: (a) necessity of complete past histories on all previous cesarean section cases, (b) careful observation of these cases, prenatally and intrapartum, to detect the earliest signs of trouble, (c) exacting caution in the obstetric use of pitocin, (d) availability of 1000 cc. of Rh negative blood in the delivery suite, (d) following difficult vaginal labor or delivery, or any possibility of uterine rupture, intrauterine exploration (mandatory), (f) clamping the aorta, through an abdominal incision, suggested as a rapid method of controlling bleeding in severe cases of rupture, (g) necessity for teamwork in all cases of rupture.

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Study of 200 Consecutive Patients Hospitalized for Asthma

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THE records of 200 consecutive patients hospitalized because of asthma were surveyed to determine the types of asthma in which hospitalization was required, the role played by infection and allergy in these patients, and the extent to which cortisone and corticotropin (ACTH) had been used in treatment of their asthma. Another purpose was to direct attention to the importance of complete study of the asthmatic patient in addition to consideration of allergy and asthma alone.

Most patients who come to the Mayo Clinic for investigation of asthma do not require care in the hospital. Among the many reasons for hospitalization of patients having asthma are: (1) severity of symptoms, such as status asthmaticus, severe nocturnal asthma and orthopnea; (2) necessity for intravenous or inhalation therapy; (3) need for investigation that requires special equipment, anesthesia or bronchoscopy; (4) treatment of complications of asthma, such as sinusitis, and (5) preoperative and postoperative care of asthmatic patients who are undergoing various surgical procedures.

Results

These 200 consecutive patients had a total of 263 admissions to the hospital from January, 1952, to December, 1953, inclusive. The type of asthma in these patients was classified on the basis of history, physical examination and laboratory findings into three categories according to cause: namely, (1) allergic, or atopic; (2) intrinsic (asthmatic bronchitis) and (3) mixed. The history was of the greatest importance in differentiating the allergic and intrinsic types. Asthma due to bronchial obstruction by tumors and foreign bodies was not included in this study. Likewise, asthma secondary to congestive cardiac failure and certain chronic pulmonary diseases was excluded, although these conditions occurred in a few instances as complications.

The patients ranged in age from eleven months to eighty-six years; ninety-three patients (46.5 per cent) were in the age group from forty-one to sixty years and twenty-four (12 per cent) were twenty years of age or less. The sex distribution in each etiologic group, as well as in each age group, was essentially similar (Table I).

The asthma in the fifty patients classified in the mixed group (allergic factors plus intrinsic factors) was primarily allergic in six and primarily intrinsic in thirty-four; allergic and intrinsic factors appeared to be of equal importance in the remaining ten. Psychogenic or nervous factors were prominent in the perpetuation of asthma in thirteen patients of the mixed group.

As will be seen in Table II, the importance of studying the patient in entirety and not just the patient's problem of asthma, important as it may be, cannot be overemphasized. In only twenty-three patients was asthma the sole medical problem; in the remaining 177 patients, one or more diseases were coexistent.

A total of sixty-seven of these patients had received cortisone or corticotropin for their asthma before coming to the clinic; twenty-one of them required additional steroid treatment during their hospitalization here. Nineteen additional patients, not treated with steroid agents elsewhere, required cortisone or corticotropin for control of their asthma while under our care.

Comment

Patients who have intrinsic asthma are much more likely to require hospitalization than are

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TABLE I. AGE AND SEX DISTRIBUTION

Age (years)	Asthma, Type					
	Allergic		Intrinsic		Mixed	
	Male	Female	Male	Female	Male	Female
0-10	2	0	7	7	0	1
11-20	1	0	5	1	0	0
21-30	0	1	3	2	6	6
31-40	2	2	4	16	1	6
41-50	2	3	19	10	5	7
51-60	1	2	16	17	6	5
61-70	4	2	10	8	3	3
71-80	0	0	2	0	1	0
81-90	0	0	1	0	0	0
	12	10	67	61	22	28
Total	22 (11 per cent)		128 (64 per cent)		50 (25 per cent)	

those whose asthma is due to allergy. Patients who have asthma as the result of contact with pollens occasionally are admitted to the hospital during the hay-fever season because of complications of asthma or because they must undergo some medical or surgical procedure. Such a patient is placed in an air-conditioned hospital room, if this is available. In the absence of air conditioning, a portable filter properly fitted to the window is entirely adequate to exclude pollen from the patient's room. Expensive air conditioning of a portion of a hospital for the care of asthmatic patients is not necessary or especially desirable. The patient who has asthma can be well cared for in the average clean hospital room provided certain simple precautions are taken.

The complications of asthma encountered in this series were all important and required special investigation and treatment. Among the most important were those of nasal and respiratory origin, as enumerated in Table II. A combination of asthma, nasal polyps and sensitivity to acetylsalicylic acid was noted in nineteen patients. As indicated in the same table, there were seventy-two instances of drug allergy requiring either treatment or precautions to avoid the drug to which the patient was sensitive. Since allergic reactions to drugs may be sudden, severe and even fatal, there should be on hand at all times a quickly available emergency kit containing sterilized syringes and epinephrine in a 1:1,000 solution, as well as aminophylline, 5 per cent solution of glucose, diphenhydramine hydrochloride (Benadryl) in doses of 50 mg. and hydrocortisone or corticotropin, all in solutions for intravenous use. Unless such emergencies are anticipated fully, much valuable time is lost in searching the hospital for the needed drugs. Oxygen and a BLB mask also should be quickly available.

TABLE II. COEXISTENT CONDITIONS OF CLINICAL SIGNIFICANCE

Condition	Patients	Condition	Patients
Nasal		Genitourinary	
Polyps	47	Cystocele	5
Hay fever	37	Inguinal hernia	5
Vasomotor rhinitis	34	Rectocele	3
Sinusitis	18		
		Nervous	
Respiratory		Psychoneurosis	3
Bronchostenosis	23	Anxiety state	2
Pulmonary emphysema	20	Postarsenical neuropathy	1
Pneumonia	6		
Löffler's syndrome	2	Cutaneous	
Bronchiectasis	2	Atopic dermatitis	5
Tuberculosis	1	Eczema	4
		Neurodermatitis	2
Cardiovascular		Psoriasis	2
Essential hypertension	10		
Congestive heart failure	6	Hematologic	
Arteriosclerotic heart disease	6	Pernicious anemia	3
		Polycythemia	2
Cor pulmonale	3		
Periarteritis nodosa	3	Allergic	
Chronic rheumatic heart disease	1	Drug sensitivity	72
		Aspirin	28
		Penicillin	17
Gastrointestinal		Iodides	8
Peptic ulcer	9	Sulfonamides	6
Cholelithiasis	8	Others	13
Hiatus hernia	2		

The purpose of hospitalization of patients who have asthma is primarily to provide symptomatic relief and bring the asthma under control, so that the second and third objectives may be accomplished, namely to ascertain and to remove or treat the causes and the complications of asthma. Admittedly, these aims are not always accomplished but they are the patient's hope and should be the physician's goal. Great and valuable advances have been made in the development of remedies for relief of the symptoms of asthma, yet most patients with chronic asthma have had wide experience in their use and still have uncontrolled asthma. A great many asthmatic patients are taking steroids unwisely because of the symptomatic relief provided, little realizing that these hormonal agents in certain instances may do more harm than good.

The treatment of the 200 patients in this series for the most part was conservative. Symptomatic measures included rest, hydration, control of overcoughing, use of expectorants (usually iodides or ammonium chloride), administration of theophylline and use of epinephrine or related sympathomimetic preparations. Chemotherapy and administration of oxygen occasionally were necessary. Use of steroids was restricted to those patients whose asthma was inadequately controlled by conservative measures and in whom careful investigation revealed no contraindication to their use;

the hormonal agents were given in the shortest possible courses to combat the stress of severe or prolonged asthma. Many patients who had received steroids before admission experienced improvement on conservative management and often did not require additional exogenous hormonal therapy. All patients who had received either cortisone or corticotropin within six months and who had to undergo bronchoscopy, operations on sinuses or other surgical procedures were routinely prepared with steroids, the administration of which was continued for only a few days after operation.

Three deaths occurred in this series. One patient, who had intrinsic asthma, emphysema and recurrent bronchostenosis, died in status asthmaticus. The second had intrinsic asthma and died as the result of congestive cardiac failure secondary to cor pulmonale. The third patient, in whom the asthma was of mixed type, died after gastroenterostomy for a duodenal ulcer.

Summary

A study was made of 200 consecutive patients at the Mayo Clinic who were hospitalized for the treatment of asthma. The type of asthma was classified as intrinsic in 64 per cent of these patients, as allergic in 11 per cent and as mixed (both allergic and intrinsic) in 25 per cent. However, intrinsic factors were predominant in the latter group.

The complications most often encountered included nasal polyps, hay fever, vasomotor rhinitis, sinusitis, drug allergy, obstructive pneumonitis (bronchostenosis) and pulmonary emphysema. The triad of asthma, nasal polyps and sensitivity to acetylsalicylic acid occurred in nineteen patients.

The frequency of occurrence of a wide variety of accompanying conditions of clinical importance points up the necessity for a broad and thorough investigation of the patient beyond the study of the problem of the asthma alone. The occurrence of asthma uncomplicated by any other clinically important disease was noted in only twenty-three of these patients.

In most instances, conservative symptomatic treatment controlled the patient's asthma, but steroid therapy was resorted to in forty of the 200 patients. Steroid treatment was terminated as early as possible. Preoperative preparation with steroids was used in all instances when the patient had been given steroids within the previous six months.

The objectives in the hospital treatment of asthma are to provide symptomatic relief of symptoms and to search for the causes and complications of the patient's asthma, with removal of them when possible.

ENVIRONMENTAL CANCER

(Continued from Page 11)

cancers and, after their discovery, to provide for their early diagnosis and treatment and to further prophylaxis. The physician will be aided in these efforts by sanitary engineers and industrial chemists. The important task of primary prevention, on the other hand, does not belong to the medical domain but is reserved to the chemist, physicist and engineer. It is up to these members of the team to devise safe production and handling procedures, and, when necessary, to develop noncarcinogenic substitutes.

The degree of protection against industrial cancer hazards which can be attained with the full use of the available knowledge and facilities, however, depends also on the economic support which industrial management, labor, government and the general public are willing and capable to give to these efforts. It is safe to state that the conquest of environmental and industrial cancer hazards will be a gradual one and, in all probability, for many of these hazards only a partial one. It will resemble, in this respect, the pattern set in past decades by the successful containment of many infectious diseases. Success in this new fight will not come to us unless we know the facts and face them soberly and boldly.

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The Prospect for Tuberculosis Control

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THIS is not a statistical analysis. I shall confine myself to principles and practices.

The committee which met in 1904 and laid the foundation for the National Association for the Study and Prevention of Tuberculosis need not be named in its entirety, but the names of five of them will have a familiar ring: Drs. William Osler, Edward L. Trudeau, William H. Welch, Abraham Jacobi and Henry M. Bracken. It was in the following year, 1905, the year of the first annual meeting of the Association, that I had the privilege of attending with my chief, Dr. Frank F. Wesbrook, in Washington, D. C. I was elected the first Secretary of the Laboratory Section and served for one year. It would be invidious to pick out any one number of the original committee for special acclaim, but I can never forget the impression made by Trudeau. In his address, he said the meeting "means that through knowledge have come responsibility and hope, and through both, action." He at that time could only say for the Association: "It cannot but prove a *powerful instrument in the struggle against tuberculosis in this country.*"

In that day, diagnosis was by percussion and auscultation of the chest and the finding of swarms of acid-fast bacilli in the sputum. These methods were crude. It was rare to recognize the early stages of the disease before cavitation was well advanced. Most cases were overlooked until symptoms made their appearance, and we now know that this is very late.

As a diagnostic tool, using minute doses subcutaneously to produce a rise of temperature, Koch's tuberculin was still in use and had considerable value in early and suspected cases. As a student in 1896, Dr. Christian Fenger had found during an appendix operation on me, some mesenteric lymph nodes which he suspected were tuberculous. Dr. Frank Billings gave me an injection of tuberculin, the size or dosage of which I do not know. That it was larger than in later use, I do know. The shocking reaction, almost fatal, gave a temperature rise to within two-tenths of 107 degrees Fahrenheit. Tuberculosis has given me no manifestations since.

The diagnostic use of tuberculin by the conjunctival reactions of Calmette and Wolff-Eisner were announced in 1907. The cutaneous reaction of Clemens Von Pirquet was announced the same year but has been replaced by the more accurate technique of the Mantoux skin test. We remember, however, that Von Pirquet introduced the word "allergy."

Few people remember that Von Pirquet was appointed Professor of Pediatrics in the Medical School of the University of Minnesota. He remained here only a few weeks, then returned to Europe. He did not return to Minneapolis to assume his post. He was succeeded by Dr. Julius P. Sedgwick.

Treatment was not further advanced than was diagnosis. Rest, fresh air, and an abundance of good food were the only essentials except for remedies for cough and pain. Sleeping porches began to burgeon on the fronts, backs, and sides of urban houses. Cabins in the country blossomed as resorts for the "lungers." No effective drug treatment was known. Robert Koch's prediction made in 1890 that "much more important is its (tuberculin's) curative action," was already well on the way to disproof. A few like Osler recognized the value of morale.

In 1904, there were only about 9,000 beds for patients with tuberculosis, and these as a rule were in small and mere nursing homes—not hospitals. Trudeau's Sanatorium, a cottage type, was the leading institution in this country. With its laboratories, it later became the mecca for everyone who desired to prepare for the care of the tuberculous.

Public Health activity in tuberculosis was just beginning. Only two states, Maryland and New Hampshire, had tuberculosis commissions. The

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first municipal ordinances requiring the reporting of tuberculosis had been enacted in New York City in 1897 under the aegis of Dr. Herman M. Biggs. Public health nursing was in its pioneering stage. As for voluntary associations of citizens to oppose tuberculosis, only eight had any money or active programs in 1904. The first and foremost was the Philadelphia Society founded in 1902 under the leadership of Dr. Lawrence M. Flick.

The attack on bovine tuberculosis had just begun. Pennsylvania, in 1895, had established a State Livestock Sanitary Board to supervise the health of domestic animals. The Pennsylvania plan later became the model for other states. Tuberculosis in cattle has been virtually eliminated in this country. In man, tuberculosis of lymph glands—scrofula—and tuberculosis of the spine, both of bovine origin, have almost disappeared here. Elimination of the disease in cattle has been of incalculable value to agriculture, and yet many can remember the bitter fight by farmers, especially in a neighboring state, before success was achieved. It has been many years since I saw a fresh case of scrofula; yet within the year one has appeared, pointing up the fact that vigilance must never be relaxed.

In the days from 1910 to about 1930, when private sanatoria cared for many of our patients, the cost of sanatorium care was a heavy added burden. Then, too, a patient might and sometimes did get the idea that he or she was kept for the sake of the income to the institution. Dr. Coons of River Pines in Stevens Point, Wisconsin, one day at a meeting in Washington, D. C., asked me why he had so little trouble keeping my patients as long as needed when so many others left against advice. I told him then of my plan to counter this unfortunate circumstance. In the first interview, at which I told my patient the diagnosis and advised sanatorium care. I took time to outline the procedures and the prospect.

I said that the time for cure might be short or it might be long. If long, it wasn't the fault of the medical man but because of the disease. One difficulty was that many patients left the sanatorium before recovery was complete and consequently relapse would occur, with total loss of all the time already spent. If recovery were satisfactory, there would be a day when the physician would say, "Now I believe that by such a date you will be ready to go home. You may notify your family to be ready." Here is where the mistake can be made. No living person, not even the physician, knows the exact date at which recovery is so complete and sure that relapse will not occur. Remember this: You are not being kept in that bed because they need the income from it. There are other people waiting for that same bed. In order to buy insurance against a relapse, I want you to look the doctor straight in the eye and say, "Doctor, won't you let me stay another month?"

Except for some progress in collapse therapy, diagnosis and treatment remained in about the state outlined above until eight years ago. Some success in the drug treatment of tuberculosis became apparent in 1947 with the use of streptomycin.

The part played by the drug treatments under study at the present time has had a tremendous impact on the mind, public as well as professional. The tendency is to class the streptomycins, PAS, and isoniazid among "miracle drugs." Those who know the problem recognize these drugs as only a part of a very complex curative program and still consider rest, diet, regimen and all the ancillary procedures of paramount importance. We may recall that it was hoped that the brilliant researches of Ehrlich would result in the eradication of syphilis. Yet within the past decade or more, penicillin has proved more efficacious in syphilis than the arsenicals of Ehrlich. We may hope for more efficacious remedies in tuberculosis.

A temptation into which patients and physicians are falling is to consider the "miracle" drugs the providential answer to their need and to use them as primary factors in cure instead of as adjuncts. It is true that these medicaments have changed the outlook where the individual lesion is small and the invading pathogen can be reached by the drug, as in miliary tuberculosis, tuberculous meningitis, in some cases of renal tuberculosis and in some tuberculous sinuses. Where, however, dense masses exist, where cavitation is advanced and where the organisms cannot be so reached, the problem is distinctly different, and specialized skill in treating the whole patient over a long and trying time is needed. The proper use today of the drugs is to condition the organisms and tissues surrounding the lesion so that surgical removal can be accomplished. In 1953, in Glen Lake Sanatorium, 175 pulmonary resections—

segmental or subsegmental lobectomy or pneumonectomy—were performed with two deaths, a mortality of only 1.14 per cent. In 1954, 146 successful operations were performed without an operative death.

The favorable results of the new drug treatment in sanatoria has resulted in an insistent clamor for the use of the drugs in the home. Here the control and supervision are inadequate. Rest and food are not adequately controlled. More serious is the absence or inadequacy of rehabilitation, education, vocational guidance, occupational therapy and recreation. In Philadelphia and Cleveland, programs for home treatment by the new drugs are in operation. One views them with profound sympathy, for they are designed to supply the need of patients for whom there is not adequate provision for sanatorium beds. In Philadelphia, the program was begun on a limited basis on April 5, 1954, and later extended to cover the whole city.

A letter from the Chief of the Tuberculosis Control Section to Katherine Radabaugh Pearce under date of August 19, 1954, says, "In a very short time, it became apparent that there were serious defects in such a plan and that it was beginning to backfire on us to a certain extent." Details are not important here. Again, we must remember that the drugs are only an adjunct.

Very naturally, patients unaware of the fact or in their natural optimism unwilling to admit that the drugs are not a cure but only an adjunct, and relying on the glowing accounts in the public press, will choose to stay at home. They thus miss the real cure. It is my considered opinion that the physician, either the general practitioner or the internist not possessing long-time sanatorium training and facilities, should not allow himself to be drawn in by any importunity or circumstance to the home treatment of pulmonary tuberculosis by the new drugs now in our possession.

Reasons for this attitude may be stated briefly:

1. Even in the early case with the Mycobacterium in the sputum, it may take two or three months to convert from positive to negative with the elimination of the infectious state.

2. Too often the patient will cut his treatment short, either because he cannot afford to continue or because he does not believe it necessary to persist. The $15,000 which Perkins has estimated as the average cost of a case of pulmonary tuberculosis, together with the long-term reduction or absence of earning capacity, imposes a financial burden which few families or individuals can sustain. Even though hopefully begun, it has to be surrendered eventually with an impaired financial status hanging over the victim. It is in the public interest, therefore, that the community bear part or all of the expense in order that a cure may be wrought with restoration of the individual to productive earning capacity and to a non-infectious state.

3. Interruption or halting at any stage in the highly complex management is fatal to the complete success of the program. Without meticulous care and intimate knowledge of the processes of sensitization and immunity, the patient may be sensitized to the drugs. Without frequent studies in the laboratory, strains of the organism resistant to the drugs may develop. Immediate attention to these factors is necessary if catastrophe is to be avoided. The determination of types of anti-tuberculosis drugs, their combination and duration of use requires specialized knowledge on the part of the physician.

In a disease such as tuberculosis, where the advance or retreat of the malady is so slow, so insidious, and so masked, it requires constant supervision by skilled observers, trained in the field, to recognize the character of the changes going on.

This supervision must be continuous, uninterrupted and must operate for many years. After arrest of the disease appears to be complete, everyone—layman, social worker, physician—who has had an opportunity to study the progress of stabilization, of recovery, and of eventual return to self-support, has seen the catastrophies so readily occuring when mistakes are made because of inadequate supervision and control. To learn that after satisfactory recovery an economic recovery is also possible leads any competent person to aid the program in every way possible. Even though complete recovery may not be attainable in certain instances, the fact that plans properly organized for rehabilitation are in operation is of immense value as a morale builder. Medical staff supervision supplemented by rehabilitation, education, vocational guidance, occupational therapy, recreation and medical social service is the *sine qua non* of a successful attack on tuberculosis. The rehabilitation process should begin the moment the patient enters the sanatorium. It should

be foremost in the plans for guidance of every patient whose recovery is possible.

It might be well, at this point, to consider for a moment the (1) recalcitrant, stubbornly defiant, and (2) the unco-operative patient.

1. The recalcitrant, stubbornly defiant group comprises alcoholics, which make up the majority, those with psychotic difficulties, and some of those sent in under compulsion by health authorities. These unfortunates can be and often are most prolific sources of spread of the infection, for they are defiant, reckless, without regard for others, and they defy all rules which would protect others as well as themselves. Kentucky state law now makes it a crime to expose others to communicable tuberculosis.

2. The unco-operative patient may be so because of an economic or family situation or from an emotional difficulty, such as depression, or simply ignorance. It should not be a matter for surprise that a well-ordered program for rehabilitation goes further than any other single factor in the treatment, to give courage, build morale, and secure co-operation.

Last May, while in London, I had an opportunity to discuss with Dr. R. R. Trail the Papworth Village and El Alamain rehabilitation projects. The principle in operation there is that the recovering and recovered tuberculosis victim spends the remainder of his or her life in these communities. Organization makes it possible for the community and its population to become self-supporting. Like some other segments of the British economy, such as general medical practice, this particular scheme may not be adapted to our economy. It does, however, point up the advantages of organization and supervision of rehabilitation.

In countries where civilization is advanced, as in our own, many infectious diseases are under fairly strict control. But note this: each has its specific method as in smallpox, plague, cholera, typhus, yellow fever and malaria. Those who live in advanced countries are outnumbered three to one by peoples living under conditions so primitive that disease still takes a terrific toll. Without the most extraordinary vigilance, victims and vectors of these diseases can be brought in by ship and by air in a few hours. No relaxation in the case-finding activities should be permitted; special attention should be given to groups and areas where the greater proportion of cases are found. All patients admitted to general and psychopathic hospitals; people in congested and poorly housed areas in cities; those in low income groups and in jails and on skid row; members of certain ethnic groups and transient labor groups, where the tuberculosis incidence is high—all need special attention.

I would like to outline, in the briefest form possible, the program which gives promise of success if faithfully carried out.

1. Find those harboring any trace of the disease. Here skin testing is the least expensive and can be used in mass form in schools, in industrial plants, in all sorts of organizations in districts and communities. Though less reliable, patch tests are less expensive than Mantoux, require less technically trained personnel and may be useful in certain groups. Follow-up of the positive cases leads to finding the infective case in the home, office or plant.

2. Intensify measures to find the infective case. Physicians still need to be taught to think of the disease in its early manifestations. Without chest x-ray, gastric washings, and in some situations bronchoscopy, the early minimal case may be missed. Mass x-ray surveys need to be speeded up and extended. Voluntary agencies have contributed immeasurably to this program, and its productiveness has been proved. Governmental agencies should now take a greater part.

3. When an infective case is found, prevent further spread of the disease from this source. Training the patient in the care of material discharged into the air is only partially effective. All sorts of failure occur. Isolation and care are the definitely effective measures. Here the sanatorium is the only final answer.

4. BCG vaccination of the nonreactors who are liable to unusual exposure—nurses and attendants in sanatoria and hospitals and others in any environment where a higher incidence of active tuberculosis is found. This should be voluntary. Early age is not a contraindication. Dr. Long states that "some of the most impressive results have been recorded in the vaccination of large groups of newborn infants."† A more highly protective vaccine may yet be found. Research for this continues.

†Esmund R. Long: Editorial. Ann. Int. Med., 41: 647-652 (September) 1954.

5. Research in all lines must continue—medical, social and economic. While governmental agencies may take part, the greater progress is made in the universities, the hospitals and sanatoria aided by funds provided by volunteer groups and individuals.

The cost of a case of tuberculosis has been estimated by Dr. James E. Perkins, Managing Director of the National Tuberculosis Association, to be about $15,000.* This includes medical care, compensation, pensions, relief payments and loss of wages but does not include the loss of potential future earnings. The reduction in time spent under the modern program will reduce this cost. In any case the cost is well repaid to the community when the patient is restored to productivity and is no longer a source of infection.

Although the program is not as yet completely stabilized or standardized, as of today the prospect of a cure in pulmonary tuberculosis is at hand. The definitive removal of the infective and infecting focus could not be thought of until the new anti-microbial remedies and the new methods of anesthesia and chest surgery had been developed. The program in each case is slow and requires infinite pains and skill—and a minimum of errors. The job before us is a difficult one and requires patient, unremitting labor. As we see it throughout the world, it seems an impossible one. As we come closer home, the results already achieved give us hope.

In St. Louis County, in Hennepin and Ramsey Counties, and in the State of Minnesota, elimination of infective tuberculous foci is going on at a rate never before achieved.

One task is to educate the law-making bodies of the profit to be secured to the citizens of Minnesota. Governmental agencies must be convinced of the social value of conquering tuberculosis. Tuberculosis Facilities Commissions have made recommendations to our Minnesota legislature calculated to use our present facilities to their fullest value. Halting advances have been made, but progress is disappointingly slow. Supporters of the program have not as yet exercised the pressure needful if the fullest use of even the present facilities is to be secured. Governmental bodies will respond only to popular demand. Voluntary agencies, including the medical profession, must enforce this demand.

Time alone will tell whether the new types of therapy, by which the cavitated and therefore infectious areas of lung are removed and the patient thereby relieved of his infecting tissue, are our final answer. The very promise leads many to relax their vigilance. Whether or not the answer is at hand, the need is for increased rather than lessened activity on the part of those interested in the welfare of the community.

*Perkins, James: The Stage is Set. National Tuberculosis Association.

REHABILITATION OF RECOVERED TUBERCULOSIS PATIENTS

"It's not what you are but what you may become that counts." This is the motto of the Minnesota Vocational Rehabilitation counselors. In addition to many other services, the counselors help prepare tuberculosis patients for normal, productive living.

"More than 50,000 men and women who have recovered from active tuberculosis have been trained for work and placed in a great variety of paying jobs by the State-Federal program for vocational rehabilitation since 1935," says a release from the Minnesota Tuberculosis and Health Association.

Minnesota Vocational Rehabilitation trained eighty-three recovered tuberculosis patients for jobs in 1954. Their estimated annual earnings were $220,312.

Recovered tuberculosis patients are often safer and more satisfactory employes and co-workers than those who have never been disabled. They have been taught to guard their health and report for regular tuberculosis check-ups. They are less likely to infect others than the apparently healthy person who does not receive regular medical examinations and who may have tuberculosis without knowing he is ill.

Employers have discovered that rehabilitated workers are absent from the job no more than workers who have no physical handicap. They do not jump from job to job. They have fewer disabling accidents on the job than do other employes.

"When a tuberculosis patient has properly recovered, received training, and is placed in the right job, he can do that job as well as anybody," the release concludes.

Seminar

BANTI'S SYNDROME

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THE term "splenic anemia" was introduced in 1866 to refer to cases of anemia in which the patient had splenomegaly but no frank evidence of leukemia. This term then obviously included cases of hemolytic anemia, aleukemic leukemia, Hodgkin's disease and several others, which were separated by Banti from the group of cases later known as Banti's syndrome.[1]

Review of Literature

Banti, in his earlier papers (1883, 1894, 1895, 1898, 1905, 1907) as cited by Reiff,[2] presented fifty cases with clinical and pathological findings, which were later grouped under "Banti's disease." The ages of the patients varied from twelve years to fifty-five years. The majority of the patients were close to thirty-five years of age. He stressed the fact that in these patients there was no evidence of any gastric disturbance, liver or biliary disease, malaria, lues or alcoholism. He described the clinical course as consisting of three stages—the first stage beginning with painless splenomegaly and the last stage characterized by cirrhosis and ascites. He also emphasized the fact that in earlier stages, no icterus, ascites or evidence of venous collateral circulation in the portal area was present.

He gave the hematological picture of eleven patients in whom he found hypochromic anemia and leukopenia. He stated, however, that erythrocytosis and normal leukocyte counts were found in some patients. He did a few bone marrow examinations which revealed hyperplastic marrow.

According to his descriptions, the spleen was invariably enlarged and he recorded 3000 gm. as the maximum weight. Adhesions between the spleen and the neighboring organs were noted. Typically, the cut surface of the spleen was firm and red, and small whitish knots, corresponding to malpighian follicles were seen. The capsule and the trabeculae were thickened. Thickening of the reticulum was marked so that it appeared almost homogenous or indistinctly fibrillar. This thickening was accompanied by narrowing of the interstices which eventually were reduced to minute cavities "dispersed in the sclerotic tissue." Because the lymph stroma retained its reticular or adenoid appearance, he termed this "fibroadenie." The sinuses were irregular and drawn together. A few follicles were described as normal but the rest contained periarterial rings of hyaline connective tissue. He found that initially follicular and pre-follicular segments were involved and later the extent of sclerotic zone progressed.

The liver, according to him, was involved in late stages and then it was indistinguishable from Laennec's cirrhosis. Changes in the gastrointestinal tract were secondary to cirrhosis.

He thought that an infectious agent was responsible for all these changes. He postulated that a toxin, elaborated either by the agent itself or as a product of altered splenic metabolism, spread through the splenic vein to the liver, thus accounting for the subsequent endophlebitis and cirrhosis.

He believed that the absence of icterus in the early stage, the large spleen in the presence of a grossly normal liver, and the fact that early splenectomy effected a cure were all evidences against cirrhosis being the cause of this condition.

He found that the spleens of patients with Laennec's cirrhosis showed congestion, dilatation of venous sinuses and absence of "fibroadenie" and that periarterial fibrosis was not marked, in contrast to the spleens of patients with "Banti's disease."

Development of interest in Banti's disease in

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America was due largely to two publications by Osler[23,24] in 1900 and 1902. He regarded conditions "to which an unusual number of labels have been attached" to be different stages of the same malady. Long duration, he thought, indicated a chronic toxic rather than an infectious process.

Warthin,[25] in 1904, published reports of two cases in which he was able to demonstrate portal obstruction leading to splenomegaly which resembled in all ways that of Banti's disease. Six years later, he collected from the literature all cases of portal obstruction and concluded that there was nothing in the clinical or pathological complex by which the cases of portal or splenic vein thrombosis could be separated from the cases of splenic anemia or Banti's disease.

Eppinger, in 1920 as cited by Reiff,[2] considered a long list of possible causes for portal obstruction. These included infections of the gastrointestinal tract or peritoneum; inflammation of the pancreas with fat necrosis, sometimes subsequent to syphilis; tuberculosis; puerperal sepsis or trauma; trauma to the vein itself; and compression or invasion of the vein by tumor. He considered primary portal thrombophlebitis, a condition similar in pathogenesis to atheromatous changes in the arteries, as a possible cause of thrombosis and obstruction, as well as primary liver disease, such as cirrhosis, terminating in obstruction of portal flow.

He studied twenty-three spleens removed surgically from patients thought to have Banti's syndrome on clinical grounds. He was unable, however, to demonstrate the histologic appearance described by Banti. He was also unable to observe the clinical stages which Banti described. He did report the case of an Albanian girl with splenomegaly which, according to him, satisfied all the clinical and pathological criteria for Banti's disease. That girl told him, before her death, that there were several persons like her in her country, suffering from the same disease. Partly due to this case and the girl's remarks, Eppinger concluded that Banti's disease had a geographic distribution and he did not deny its existence. He, however, thought that the splenomegaly resulting from portal obstruction was being incorrectly designated as Banti's disease.

Mennet,[26] in 1920, wrote that he was unable to find in Banti's description any change which did not occur in cirrhosis of the liver. Kauffmann,[27] in 1922, observed that the splenic sinuses were broadened in Laennec's cirrhosis and he thought that this was a specific difference between the spleen in cirrhosis and that in Banti's syndrome. Dürr[28] outlined a diagnostic triad for Banti's spleen which consisted of (1) sinus hyperplasia, (2) periarterial fibrosis and (3) "trabekela ufersplittering" which means modification of the architecture of the trabeculae. He noticed that from the irregular borders of these structures long tapering collagenous processes radiated into the pulp.

Naegeli[29] was unable to find any basis for distinguishing Banti's disease from ordinary cirrhosis of the liver. Klemperer[34] concluded from his own studies that the pathological picture produced by thrombosis of the portal vein was identical to that of Banti's disease.

Watson[30] studied the various forms of splenomegaly in 1929. He stated that the splenic sinuses in liver cirrhosis were wide and prominent in contrast to the narrow sinuses of primary splenic fibrosis or of splenic change secondary to known systemic disease.

Larrabee[31] believed that long continued passive congestion was the mechanism involved for splenic changes in Banti's disease.

Members of the spleen clinic of Presbyterian Hospital in New York[19,32,33] measured splenic vein pressure in eighteen patients with Banti's syndrome. The pressures ranged from 225 to 500 mm. of normal saline. The average was 363.5 mm. Obstruction was variously attributed to: (1) cirrhosis of the liver, (2) schistosomiasis, (3) thrombosis of the splenic vein, (4) cavernomatous transformation of the portal vein, (5) stenosis of portal vein and (6) undetermined causes. In their control group, which consisted of cases of hemolytic jaundice, Gaucher's disease, purpura, pancreatic adenoma, lymphoblastoma and splenomegaly of undetermined origin, the splenic vein pressure ranged between 70-360 mm. of normal saline, the average being 195.7 cm. The authors believed that a fundamental factor common to all cases of Banti's syndrome was portal venous obstruction.

Ravenna,[12] in 1943, proposed the theory that congestive splenomegaly is a result of primary lesions of the small splenic arteries which regulate the blood flow into the spleen (primary active congestion). He postulated that the regulatory power of the splenic arterioles is disturbed

eliminating control over the inflow of blood and that the consequent congestive splenomegaly is the cause of circulatory disturbance in the portal bed.

Reiff,[2] in 1944, studied splenic sinuses by staining with azo-carmine. By this method he was able to distinguish the collapsed sinuses from bundles of collagen with fibroblastic nuclei. This distinction was impossible with hematoxylin and eosin or Dominici's stain. He thereby demonstrated that there was a marked increase of sinuses in the majority of spleens from patients with Banti's disease.

Wintrobe[1] believes that portal hypertension accounts for the development of Banti's syndrome. However, full acceptance of this view is difficult since an obstructive factor cannot be demonstrated in as many as 40 per cent of cases.[16] On the other hand, it is said that most of the time the site of obstruction is missed and overlooked.

Many animal experiments have failed to produce Banti's syndrome by partial or complete occlusion of the portal vein. However, when hepatic cirrhosis is produced in rabbits by manganese[20] or in dogs by means of silica[19] splenic enlargement and the picture of congestive splenomegaly develops. Probably an irritative factor also plays a rôle. It is possible that long standing portal obstruction rather than that caused by simple vascular occlusion is the important cause. Recently, Palmer et al[22] succeeded in producing splenomegaly, anemia, leukopenia and a mild thrombocytopenia in albino rats by intraperitoneal administration of methyl cellulose over a period of fifteen weeks. It is suggested that the syndrome produced by methyl cellulose may represent an experimental form of the process to which, in man, the term "secondary hypersplenism" has been applied.

Failure to demonstrate an obstructive factor in a number of cases and the fact that portal obstruction independent of splenic diseases has been observed in the absence of appreciable splenic enlargement support the concept that Banti's disease represents a primary disease of the spleen.

The concept of "hypersplenism" has been invoked to explain the hematological picture of Banti's disease.

A recent ease report[6] concerns a child in whom umbilical sepsis developed and who later had multiple osteomyelitis and scattered subcutaneous abscesses (S. aureus). At the age of thirteen months, he had hematemesis. His spleen was very much enlarged. The liver was not enlarged. A splenectomy was performed and the pressure in the splenic vein was normal. The problem was whether the changes occurring in the liver and spleen had any relation to previous umbilical sepsis or whether the two processes were independent.

Recently, Banti's syndrome has been described, for the first time in veterinary literature[7] in a dog. On operation, they found an aneurysm of the splenic artery pressing on the vein, with splenic vein thrombosis, resulting in Banti's syndrome.

Tidy,[9] in a recent paper, stated that the size of the spleen has no influence on the anemia and leukopenia and that it is not the cause of hematemesis or of development of clinical cirrhosis and ascites. His conclusion was that the splenomegaly, the anemia and leukopenia and the cirrhosis develop independently of each other. If this is correct, there must be an agent which acts independently on the three structures.

McMichael[20] stated that the liver is always involved throughout the course, whether there is clinical evidence or not, and that the liver and spleen are both affected by the same factor but independently and not necessarily to the same extent.

Tidy, in 1952 as cited by Hauge,[11] advanced the theory that Banti's disease could be caused by RH incompatibility. Gerrard, however, believes that splenic enlargement could only be a rare sequel of RH isoimmunization. Recently, Banti's disease was recorded in two brothers but no blood group incompatibility was found in them.

Clinical Features

Most patients are under thirty-five, and symptoms may occur in childhood. In Banti's series, females predominated in a 2:1 ratio, but this has not been true in other series. Onset is usually insidious, but it may be sudden with hematemesis or melena. Gastrointestinal bleeding is present in 50 per cent of the cases. In other cases, there may be abdominal pain or discomfort or a left upper quadrant mass, or symptoms due to anemia may predominate. Flatulence, diarrhea, vague indigestion or even mild jaundice in association with abdominal pain and fever may appear. The spleen is usually big. The liver is moderately en-

larged. Weight loss is not conspicuous. Anemia, which is normocytic, usually follows splenomegaly; however, after repeated hemorrhage it is hypochromic, microcytic in type. Cell fragility is normal or reduced in hypotonic saline solution. When cirrhosis is marked, the anemia may be macrocytic. Usually, there is leukopenia and thrombocytopenia. The bone marrow in early stages shows no abnormality. Limarzi[13] has reported myeloid hyperplasia in the earliest stages and maturation arrest of myeloid and megakaryocytic series later. In the presence of cirrhosis marked erythroid immaturity was found. Following hemorrhage, normoblastic hyperplasia is seen. Davidson[21] found achlorhydria in four of his eight patients.

The course of the disease may be prolonged and benign. However, at any time it may be interrupted by gastrointestinal hemorrhage, portomesenteric thrombosis or hepatitis. In other cases, there is a steady progression to hepatic insufficiency and signs of portal venous obstruction appear. Death is usually due to one of the complications mentioned above or an intercurrent unrelated disease.

In describing clinical features, Tidy[9] divided the patients into three different age groups: (1) those under ten years of age; (2) those between ten and twenty years; and (3) those in later decades. According to him, in the first group of cases, the hematemesis occurs when there is no enlargement of the spleen and no anemia, leaving hepatic cirrhosis as the only reasonable explanation. He indicated that the splenic enlargement is often not more than moderate; however, in three cases he found that the spleen extended down to the umbilicus. He stated that there is no relationship between the size of the spleen and subsequent prognosis, nor is there any between the prognosis and splenectomy. In two of his patients under eight years of age, the liver reached to the umbilicus, and in the third case it was easily palpable. According to him, the chance of survival up to twenty years in this group is very poor.

He described the second group of patients as having a less acute onset and course and a better prognosis. Hematemesis, in this group, is less fatal, and cirrhosis with ascites may be as common a cause of death.

In the last group, those patients in the later decades, there is splenomegaly with anemia and leukopenia. Hematemesis is not so serious and the duration may be many years with only minor disabilities.

From the above description, it seems that the changing picture may be produced by the same factor but of different grades of severity. Its effects are revealed by different structures as patients with the milder forms live on into adult life and the later decades. The severest grades cause death in early life, the brunt of the process falling on the liver and incidentally producing hematemesis in a body not yet possessing reserves of blood and of blood forming tissues. A less severe but still serious grade appears in adolescents and young adults. Mild grades in subjects who consequently survive into adult life have time to produce their action on the spleen and bone marrow. The hepatic lesions which are insufficient to produce early death are usually also insufficient to produce clinical manifestations of portal cirrhosis but are recognizable on pathological examination probably in every case.

Treatment

Anemia needs treatment. In cases of severe hemorrhage, blood transfusion may be required. Iron should be given in cases of hypochromic microcytic anemia. Splenectomy is a complex subject. At one time, this was considered the best treatment; however, conclusions were drawn without comparing results following splenectomy with the course of the disease in patients not operated upon. Immediate postoperative mortality has been reported as 10 to 38 per cent.[14] Subsequently, hemorrhage may recur in one-third to one-half of patients operated upon with the development of hepatic insufficiency or thrombosis in the portal area. In Howell's[15] comparison of fifty-one patients subjected to splenectomy and forty-three patients without splenectomy, no difference between the two groups could be demonstrated in regard to expectation of life, development of hepatic dysfunction, or occurrence of hematemesis.

However, studies at the spleen clinic at Presbyterian Hospital in New York[16,17,18] indicated that more careful selection of patients for splenectomy has resulted in better operative results. It has been stated that the surgeon should not perform splenectomy in Banti's syndrome unless he is prepared to do a splenorenal anastomosis as this may be the only opportunity to construct a satisfactory

shunt. In general, abdominal exploration seems advisable in many cases of congestive splenomegaly.

A few contraindications for splenectomy have been suggested.[8] These are:

1. It is rarely justified in progressive decompensating liver disease.

2. It is not justified in the presence of a preoperative thrombocytosis.

3. It is not justified if bone marrow shows evidence of a toxic depression rather than the characteristic hyperplasia.

4. It is contraindicated in the presence of an erythroblastic bone marrow with a reversal of the myeloid-erythroid ratio.

5. It is contraindicated in children whose blood picture is not typical of this disease.

6. Lastly, a severe degree of anemia may also be an immediate contraindication for operation.

According to a recent article,[8] the following are considered as indicating serious operative risk for the porto-caval shunt procedure:

1. Plasma albumin below 3 gms.

2. Ascites which fails to respond to medical therapy.

3. Cephalin-cholesterol flocculation test results of 3 plus in 24 hours and 4 plus in 48 hours.

4. Prothrombin time prolonged more than four seconds above normal after adequate Vitamin K therapy.

5. Elevated serum bilirubin.

6. Bromsulfalein retention greater than 10 per cent in half an hour.

Several procedures are available for porto-caval shunt, the discussion of which is beyond the scope of this paper.

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THREE-INJECTION METHOD FOR SALK VACCINE CONTINUED

A technical committee on the Salk poliomyelitis vaccine has agreed unanimously, and Department of HEW officials have concurred, that the present system of three injections should be continued. The group rejected a proposal for a single injection to get the limited supply to more children. PHS Surgeon General Scheele summed up for the committee in these words: "Although it is evident that the injection of 1 cc produces a marked degree of immunity, it was found that there is not enough scientific evidence on the duration of immunity after a single dose to lead to any recommendation for a change in the present dosage."

Accordingly, this remains the procedure: two injections, with the second following four to six weeks after the initial dose or as soon thereafter as possible; then a booster shot seven months or later after the second injection. Each shot 1 cc.

PHS's Poliomyelitis Surveillance Unit presented figures to the conferees on single injections which purported to show 69 per cent effectiveness in seven reporting states (of 1,490,459 children vaccinated in these states, only fifty-eight had paralytic polio, while of 1,789,651 unvaccinated children, 325 had paralytic polio). The states under study were New York, California, Colorado, Illinois, Maryland, Minnesota and Missouri. Dr. Jonas Salk, developer of the vaccine, demonstrated on the other hand that a second injection followed by the booster markedly increases the degree of immunity. In conclusion, the group of experts agreed to stand by the present system because, among other reasons, (1) a higher incidence of polio occurs in lower age groups and efforts should be concentrated there, and (2) difficulties possibly would arise in re-educating physicians and parents on any change.—*AMA Washington Letter*, Dec. 9, 1955.

Case Presentations

Hematoma of the Retropharyngeal Space Causing Tracheal and Esophageal Obstruction

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THE retropharyngeal space frequently receives the attention of the endoscopist because it is the area first involved in mediastinitis following esophagoscopic perforation of the cervical esophagus. This potential space is described in Gray's anatomy[1] as being limited posteriorly by the prevertebral fascia, laterally by the investment of the carotid sheaths by the same fascia and anteriorly by the buccopharyngeal fascia covering the posterior aspect of the pharynx and the esophagus. It extends from the base of the skull down into the posterior mediastinum.

Although inflammatory involvement of this potential space is not uncommon, it is exceedingly rare to find it distended with blood. Spontaneous hemorrhage in the neck causing respiratory obstruction in hemophiliacs has been reported.[2,3] The following case report describes a patient with a post traumatic hematoma of the retropharyngeal space causing tracheal and esophageal obstruction.

Case Report

An eighty-two-year-old widow was admitted to the hospital because of acute dyspnea. The past history revealed that for eight years, the patient had been under care because of chronic heart failure with recurrent attacks of myocardial insufficiency due to generalized arteriosclerosis with mild hypertension, 150/100. During the period of continuous observation, she was treated with digitalis, a low sodium diet and ammonium chloride. Because of failure to follow all therapeutic injunctions, the patient occasionally had need of additional dehydration with a mercurial diuretic. Except for stasis ulcers of the left leg due to chronic venous insufficiency, no other significant illness was found in the previous medical history.

The patient stated that about twenty hours previous to admission to the hospital, she fell at home. This caused no apparent difficulty until about seven hours before admission when she began to have pain in the left side of her neck. Two hours before admission, she noted onset of swelling in her neck which rapidly increased in severity and was associated with respiratory difficulty. The examination in the emergency room revealed an elderly woman in severe respiratory distress. There was marked inspiratory stridor and in order to have any airway, she had to sit up straight with her chin thrown forward. There were also multiple bruises over the front and back of her trunk. The tense swelling in her neck extended laterally to both sternocleidomastoid muscles and from her chin to her clavicles.

X-ray of the cervical spine failed to reveal a fracture but the lateral film showed a very marked widening of the retropharyngeal space (Fig. 1). Because of the history of a recent fall and the tenseness of the swelling, this was assumed to be due to hemorrhage. However, the immediate problem was the necessity for establishment of an airway. A tracheotomy was done with prompt relief of her respiratory distress. After this, it was apparent that the patient was unable to swallow. Liquids would not pass down and attempts at passing a stomach tube met an obstruction in the lower pharynx. It was possible to see the hematoma bulging through the posterior pharyngeal wall.

The patient's fluid and electrolyte balance was maintained intravenously for a few days. Hematologic evaluation failed to reveal any abnormality of the clotting mechanism. Although it was apparent that the active bleeding had stopped, there was a steady extension of the cervical ecchymosis to involve the chest, breasts and trunk. A film taken at this time revealed that the hematoma was smaller (Fig. 2). However, it was apparent that there would be many days before this blood clot would become small enough to allow her to swallow. Therefore, nine days after admission, a left anterior cervical mediastinotomy was performed. This was done in the usual manner through an incision along the anterior border of the sternocleidomastoid muscle. The dissection was carried through the deep fascia above the omohyoid muscle, medial to the carotid sheath and lateral to the thyroid gland. The buccopharyngeal fascia was tense and bulging. Beneath this fascia was found a space containing an estimated 300 cc. of clotted blood. After the hematoma was evacuated, it was possible to palpate up into the pharynx behind the posterior pharyngeal wall and down into the mediastinum behind the esophagus.

After the mediastinotomy, the patient made slow but steady improvement. The tracheotomy tube was removed two days later and she was dismissed from the hospital ten days after that. An x-ray film taken five days after the mediastinotomy revealed a marked reduction in the

From the Department of Surgery and Internal Medicine of the Duluth Clinic.

width of the retropharyngeal space (Fig. 3). The patient's subsequent course was uneventful and she was able to swallow all types of food without difficulty.

Attempts at explaining the source of this hemorrhage are purely speculative. If attention is directed to the illustrations, one may note the scattered calcifications about the neck. It can be assumed that some of these calcifications are in her markedly arteriosclerotic blood vessels. It is conceivable that torsion on one of these pipe-stem vessels during the fall caused a fracture of the vessel wall and the subsequent hemorrhage.

Fig. 1. Lateral view of neck taken on admission, showing marked widening of the retropharyngeal space.

Fig. 2. Lateral film of neck taken eight days after admission. There has been some decrease in the width of the retropharyngeal space. Tracheotomy tube is in place.

Fig. 3. Lateral film of neck taken five days after anterior cervical mediastinotomy. Tracheotomy tube has been removed and there is reduction in the width of the retropharyngeal space.

Summary

A case is reported in which an eighty-two-year-old woman in chronic congestive heart failure developed, following a fall, tracheal and esophageal obstruction from a hematoma in the retropharyngeal space. The patient was treated successfully by an emergency tracheotomy and a later anterior cervical mediastinotomy.

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STUDY OF THYROID HORMONE

Three major diagnostic laboratory methods are available in the estimation of thyroid activity, said Dr. Keith P. Russell, Assistant Clinical Professor of Obstetrics and Gynecology, University of Southern California, speaking before the Fourth Annual Clinical Meeting of The American Academy of Obstetrics and Gynecology held in Chicago in December. Dr. Russell said that the PBI Test (protein-bound iodine) of the serum or plasma has been shown to be an accurate index of circulating thyroid hormone, and at present is the most widely used single test of thyroid function. The PBI Test measures the amount of the hormone (thyroxine) being put out by the gland.

Dr. Russell described the radioactive iodine test (I 131), as the test that measures the functional capability of the gland itself. The third and last method described was the basal metabolic rate (BMR), which measures the effect of thyroxine on the metabolic function of the patient's cells, its action on the body tissues.

Dr. Russell summed up the three methods by concluding that each one measures a different facet of the total function. Therefore, all three are of major importance in the detection and management of thyroid gland problems.

Locked Twins, Chin to Chin, Obstructing Labor

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THE condition of chin-to-chin locking in twins, causing obstructed labor, is almost as rare as flying saucers. The quoted incidence of one such occurrence in 90,000 labors stems from the remark by Braun that he remembered only one such case in 90,000 deliveries in Vienna. In Minneapolis, in the past fifteen years there have been about 250,000 deliveries; the case to be presented appears to be the only such case, or one in 250,000 labors.

In reviewing the literature from 1912, only twenty-four cases of chin-to-chin locked twins have been found (Table I). Lawrence, in a report of a case in 1949 found fifteen previous reports. These have all been confirmed and eight more reports found to 1954. Four or five other references are presently unavailable. Less than thirty cases have been reported in the past forty years.

TABLE I.

Year	Author	Gravida	Treatment of Locking	Weights of Twins	Results	Type
1912	MacDonald[1]	1	1. Decapitation 2. Forceps	1. Large 2. Large	1. S.B. 2. A.	Binovular
1926	Gehse[2]	1	1. Decapitation 2. Forceps	1. 4 lbs. 10 oz. 2. 5 lbs. 2 oz.	1. S.B. 2. A.	Not Stated
1928	Hunter[3]	1	1. Decapitation 2. Forceps	1. 4 lbs. 12 oz. 2. 3 lbs. 4 oz.	1. S.B. 2. A.	Uniovular
1933	Moore[4]	1	Disengagement 1. Breech extraction 2. Forceps	1. 4 lbs. 2. 5 lbs. 3 oz.	1. S.B. 2. A.	Binovular
1937	Spence[5]	1	Disengagement 1. Breech extraction 2. Forceps	1. Not stated 2. 5 lbs. 1 oz.	1. S.B. 2. A.	Uniovular
1937	Whitfield[6]	1	1. Decapitation 2. Forceps	1. 4 lbs. 2. 4 lbs.	1. S.B. 2. A.	Binovular
1937	Peters[7]	1	Cesarean	1. 5 lbs. 4½ oz. 2. 4 lbs. 6½ oz.	1. A. 2. A.	Uniovular
1938	Russell[8]	1	Disengagement 1. Breech extraction 2. Version and extraction	1. 4 lbs. 2. 3 lbs. 12 oz.	1. S.B. 2. A.	Not Stated
1938	Te Groen[9]	3	1. Decapitation 2. Version and extraction	1. 4 lbs. 4½ oz. 2. 4 lbs. 5 oz.	1. S.B. 2. A.	Binovular
1938	Bowles[10]	1	1. Decapitation 2. Spontaneous delivery	1. 4 lbs. 2. 4 lbs. 12 oz.	1. S.B. 2. S.B.	Uniovular
1942	Nicolson[11]	1	1. Decapitation 2. Forceps	1. 3 lbs. 9 oz. 2. 3 lbs. 6 oz.	1. S.B. 2. A.	Uniovular
1942	Wright[12]	1	Disengagement 1. Breech extraction 2. Forceps	1. 4 lbs. 1 oz. 2. 4 lbs. 11 oz.	1. S.B. 2. S.B.	Binovular
1942	Wright[12]	1	1. Decapitation 2. Forceps	1. 4 lbs. 10 oz. 2. 2 lbs. 13 oz.	1. S.B. 2. S.B.	Binovular
1944	Bradlow[13]	2	Disengagement 1. Breech extraction 2. Version and breech extraction	1. 5 lbs. 3 oz. 2. 4 lbs. 4 oz.	1. A. 2. A.	Uniovular
1944	Love[14]	1	Disengagement 1. Breech extraction 2. Spontaneous vertex	1. 3 lbs. 2. 3 lbs.	1. S.B. 2. A.	Uniovular
1946	Greig[15]	2	Disengagement 1. Breech extraction 2. Spontaneous	1. 4 lbs. 10 oz. 2. 5 lbs. 2 oz.	1. A. 2. A.	Uniovular
1949	Lawrence[16]	1	1. Decapitation 2. Forceps	1. 6 lbs. 2. 4 lbs. 7 oz.	1. S.B. 2. A.	Binovular
1947	Geggie[17]	11	1. Decapitation 2. Spontaneous	1. Not stated 2. Not stated	1. S.B. 2. S.B.	Binovular
1950	Kimball and Rand[18]	3	1. Breech extraction 2. Piper forceps	1. 4 lbs. 4 oz. 2. 4 lbs. 6 oz.	1. A. 2. A.	
1951	Stenstrom[19]	2	1. Decapitation 2. Forceps	1. Not stated 2. Not stated		
1951	Lattuada[20]	1	Cesarean	1. Not stated 2. Not stated	1. N.N.D. 2. A.	Binovular
1951	McIntyre and Barr[21]	1	1. Head of second twin pushed up 2. Version and extraction	1. 3 lbs. 15 oz. 2. 3 lbs. 10 oz.	1. S.B. 2. A.	Uniovular
1951	McIntyre and Barr[21]	1	1. Head pushed up 2. Spontaneous	1. 3 lbs. 12 oz. 2. 6 lbs. 10 oz.	1. S.B. 2. A.	Uniovular
1953	Friedman[22]	3	1. Head pushed up 2. Version and extraction	1. 4 lbs. 9 oz. 2. 8 lbs. 3 oz.	1. A. 2. A.	

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Treatment

The treatment of the locked heads depends on (1) the size of the fetuses and (2) the stage of labor. Beck,[24] DeLee,[25] and Titus[23] all state that if disengagement is not effected under deep anesthesia, decapitation of the first twin is indicated. However, Greenhill,[25] in the last edition notes "the condition would be ideal for laparotracheotomy as the opening in the uterus is immediately over the interlocked heads."

Kimball and Rand[18] ingeniously applied Piper forceps to the second head of small (4 pound) twins and delivered both alive. In the series presented eleven decapitations were done, disengagement was successful in three cases (six babies born alive), cesarean section was successful in two cases (four babies born alive, one neonatal death). The maternal mortality was 0 per cent but the fetal mortality (twenty-three stillborn, one neonatal death) was 50 per cent.

One can readily understand now the reason for the paucity of reports. We are therefore pleased to report the following case in which identical twin boys weighing a total of 14 pounds were delivered alive and well.

Case Report

Mrs. V. M., aged nineteen, gravida 1, had a due date of August 19, 1954. There was a family history of twins. She had a normal pregnancy, with a weight gain of 20 pounds. A flat plate of the abdomen on August 4 showed twins, one breech and one cephalic. There was a spontaneous onset of labor at 11:30 p.m. on August 19, 1954. The membranes ruptured spontaneously at 2:15 a.m. on August 20. She had mild contractions all day and was well sedated. A vaginal examination in evening of August 20 showed the cervix completely dilated, with breech at the spines. The patient was fatigued but not exhausted. In a telephone consultation, locked twins were discussed but considered improbable. The patient slept all night with no contractions.

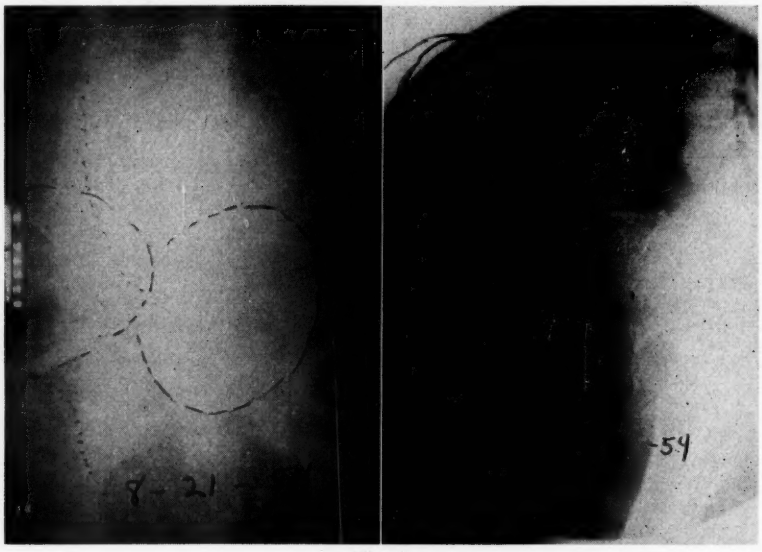

Fig. 1.

TABLE II

Chin-to-chin locked twins	24
Gravida 1	17
Decapitation	11
Stillborn	23
Neonatal death	1
Uniovular	10
Mortality	
Maternal	0%
Fetal	50%

An x-ray at 8:00 a.m. on August 21 (thirty-two and one-half hours since the onset of labor, twelve hours in the second stage) showed chin-to-chin locked twins. Both fetal heart tones were heard.

Cesarean section was done from 11:10 a.m. to 12:15 p.m. on August 21 under spinal anesthesia (procaine 80 mg.). A transverse low incision was made in the uterus. The first twin was extracted by breech but the chin was unlocked manually with difficulty. The second twin, cephalic, was readily pushed through the incision. Both were males, the first weighing 6 pounds 15½ ounces, the second 7 pounds ½ ounce. There was a uniovular placenta, indicating identical twins. The patient had an uneventful afebrile recovery. The mother and babies were discharged on the eighth post-partum day.

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Laboratory Aids

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George G. Stilwell, Editor

ACUTE INFECTIOUS HEPATITIS: LABORATORY AIDS IN MANAGEMENT

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Acute infectious hepatitis, formerly known as catarrhal jaundice, has become an increasingly familiar problem to physicians during the past few years. In spite of the accelerated experience with this viral disease, many hiatuses exist in knowledge of its pathogenesis and epidemiology. The incidence of infectious hepatitis apparently is increasing at a rapid rate. In 1951, a total of 7,349 cases was reported in the United States. After the disease was added to the list of reportable conditions in 1952, the total jumped to 17,428 cases in that year. Approximately 50,000 cases were reported in 1954. Infectious hepatitis may occur in persons of any age and at any time of the year. Because its viral origin was recognized relatively recently, control measures have not yet evolved.

Two forms of viral hepatitis are encountered, namely, acute infectious hepatitis and serum hepatitis, the latter being transmitted by syringes, needles or blood contaminated with the virus. In the former variety, the virus appears in both blood and feces, whereas it is apparently present only in blood in serum hepatitis. The signs and symptoms in these two forms of the disease are similar, and routine laboratory tests cannot differentiate the two varieties. Most instances of acute infectious hepatitis probably occur as the result of spread from person to person, but relatively explosive outbreaks have appeared, suggesting transmission by contaminated food or water or both. Chronic carriers of the virus of infectious hepatitis possibly exist; it is suggested that perhaps 0.2 per cent of the general population carry the virus of serum hepatitis in their blood.

From the Section of Publications, Mayo Clinic, Rochester, Minnesota.

This is the thirty-fifth in a series of editorial reports sponsored by the Minnesota Society of Clinical Pathologists and designed to foster closer relationships between laboratory physicians and their colleagues.

Diagnosis

One of the outstanding hallmarks of infectious hepatitis is the extreme fatigability, which may incapacitate the patient and which may be present for some time before jaundice occurs. The appearance of hepatomegaly and jaundice directs attention to the liver after the nonspecific prodromal signs and symptoms have been present for varying periods. Chills and fever frequently precede the jaundice by several days. Acute infectious hepatitis usually runs a self-limited and benign course of thirty to sixty days.

A most important factor in the management of infectious hepatitis is the recognition of impending hepatic insufficiency. For this purpose it is impossible to substitute laboratory data for the continued careful clinical observation of patients who have hepatic disease. The signs on which a prediction of impending hepatic coma can be based include an increase in abdominal distention, deepening of the jaundice, appearance of peripheral edema, onset of muscular twitchings and the occurrence of fresh spider angiomas. A peculiar odor of the breath, the so-called fetor hepaticus, may appear; this is a sweetish, not unpleasant odor probably caused by a tertiary amine and resembling the aroma of alpha methyl piperidine.

It is evident, then, that laboratory tests have a supplemental place in the original diagnosis of hepatitis and in the detection of impending hepatic insufficiency. Use of liver function tests does show the extent of hepatic damage but may not allow differentiation of the various types of hepatitis. The excretory function of the liver may be evaluated by such procedures as the measurement of total serum bilirubin, the amount of bilirubin in the urine, the degree of retention of sulfobromophthalein in the blood and the value for serum phosphatase. The functional state of the hepatic cells themselves may be gauged by the various flocculation and turbidity tests, such as cephalin-

cholesterol flocculation, thymol turbidity and zinc sulfate turbidity, urinary urobilinogen, "prothrombin time," blood cholesterol, serum proteins and the synthesis of hippuric acid. Other tests that may be used include phenol turbidity, colloidal red, serum cholinesterase and measurement of gamma globulin.

If the results of most or all of these tests indicate hepatic dysfunction and if the patient has hepatomegaly and anorexia, the diagnosis probably is hepatitis. With negative cephalin-cholesterol flocculation and thymol turbidity and with normal or decreased urinary urobilinogen, biliary obstruction is more likely to be present. When the diagnosis remains doubtful despite thorough clinical and laboratory investigation, the physician is warranted in doing hepatic biopsy. The characteristic histopathologic features of viral hepatitis usually can be differentiated from the changes associated with extrahepatic obstructive jaundice.

As already indicated, laboratory procedures are of value as supplemental evidence of imminent hepatic insufficiency. Unfavorable changes in hepatic function may be indicated by (1) sudden or steady increase in the value of serum bilirubin, (2) sudden or steady decrease in urinary output, (3) sudden leukocytosis, which often is indicative of increased destruction of the hepatic parenchyma, (4) persistent reduction in the amount of serum albumin, (5) sudden or steady lengthening of the "prothrombin time" and (6) decrease in serum cholinesterase.

Laboratory Tests During Convalescence in Infectious Hepatitis

Probably the most important role of laboratory tests in infectious hepatitis is the aid they give in the management of the convalescent phase of the disease. Most tests of hepatic function are of little or no value during the acute stages of the illness, when the patient is jaundiced and obviously sick. However, such tests are of great value later in the course of the disease, when complaints are minimal or absent and abnormalities are not found on physical examination. These tests should be performed at regular intervals during convalescence, so that significant changes, either progressive or regressive in nature, will become readily apparent.

Analysis of the large battery of tests of hepatic function that are available indicate that three procedures are of prime importance in such a program. These are the sulfobromophthalein test, the thymol turbidity test and measurement of total serum bilirubin. Use of these three tests is adequate to demonstrate persistent or recurrent hepatic dysfunction throughout the period of convalescence in infectious hepatitis. The cephalin-cholesterol flocculation procedure is also of value according to many workers, although others state that it is insensitive in later phases of the disease and thus may be misleading.

Retention of sulfobromophthalein is undoubtedly the most sensitive indicator of hepatic dysfunction after jaundice has disappeared. As many as 35 per cent of patients still have definitely abnormal retention of this dye as long as seven weeks after jaundice has gone. At the same time, the thymol turbidity test may show positive results in about 25 per cent of convalescents, as does the zinc sulfate turbidity test, whereas the results of practically all other tests of hepatic function may be normal except for a few scattered positive reactions. The amount of total serum bilirubin also should be determined weekly during convalescence, even though the sulfobromophthalein test is a more sensitive indicator of a relapse.

By periodic use of these tests, the physician can minimize the dangers of allowing the patient to resume full activity too early and can detect impending relapse at the earliest possible moment. Conversely, such studies will avoid unnecessary prolongation of rest in bed and an undue delay in the return to full activity, factors that may be of particular importance to military personnel.

Because of the aforementioned self-limited nature and the usual benignancy of infectious hepatitis, conservative management is used almost universally. The two main factors in this regimen have been a high-protein, high-carbohydrate diet and adequate rest in bed. Some recent surveys tend to minimize the importance of a strict diet and undue restriction of activities.

Investigators associated with the Armed Forces have recommended the following program of management of infectious hepatitis, governed by the results of laboratory tests.

1. The patient is confined in the hospital or at home and stays in bed if he feels sick. He may get up if he feels able, except that he must rest for 1 hour after each meal.

2. The total serum bilirubin is determined regularly until it is less than 1.5 mg. per 100 ml.

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Current Concepts

THE VALUE OF PROLONGED ANTICOAGULANT THERAPY

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Since the contributions of Wright[1] and coworkers and Nichol and Borg[2] concerning prolonged anticoagulant therapy, many favorable reports have appeared. Such treatment has received increasing acceptance in many thromboembolic conditions.

1. *Recurrent embolization associated with rheumatic heart disease and auricular fibrillation.* This complication, especially when associated with cardiomegaly and stubborn decompensation, occurs much less frequently when patients are kept on prolonged anticoagulant therapy. These patients are especially susceptible to such recurrences, and treatment should be continued indefinitely. With a relatively small heart and easily controlled compensation, some investigators suggest that therapy may be stopped after about six months.

2. *Recurrent pulmonary infarction, thrombotic or embolic.* This condition, frequently of unknown cause, may be a serious condition leading to pulmonary suppuration and its dangerous complications. It may simulate pneumonia and should always be suspected in a patient with heart disease when an unexplained break in compensation appears. Often unrecognized, it occurs so often in congestive heart failure that the use of anticoagulants in this group of patients is widely advised. Treatment should be discontinued only when all possible causes seem likely to be under control.

3. *Multiple arterial occlusions, thrombotic or embolic, occurring anywhere in the body regardless of cause.* These may occur especially in angiitis, arteriosclerosis, or heart disease with associated mural thrombi, and their recurrence lead to crippling conditions. With our present knowledge, it is probably better to exclude emboli from bacterial endocarditis from this category. Treatment should be continued until the cause is determined to be probably inactive.

4. *Recurrent thrombophlebitis, especially when occurring at rather short intervals of time.* These conditions occur usually in the lower extremities and may be deep or superficial. If treatment seems ineffective, consideration of the possibility of malignancy, especially obscure visceral carcinoma, must not be overlooked. Therapy should be continued several months after the cause is apparently under control.

5. *Myocardial infarction.* The frequency of recurrence of this condition, especially in the first two years after an initial attack, has led to an increasing acceptance of prophylactic long-term anticoagulant therapy. Recurrences and thromboembolic complications appear to occur much less frequently in the treated groups. These observations must be confirmed by others with much larger series of patients before it can be regarded as conclusive. Personal experience with the use of ambulatory anticoagulant therapy over the past eight years has prompted continuance of this therapy and its recommendation to others. Treatment should be maintained at least two years, probably indefinitely.

6. *Impending myocardial infarction.* Prevention of an initial myocardial infarction is considered by many to be sufficiently likely in a certain group of patients to justify anticoagulant therapy to be continued over a long period. This group includes (1) those patients who with no history of previous cardiac pain begin a series of spells of moderate cardiac distress without significant provocation and (2) a group of angina pectoris patients who abruptly begin to have increased frequency and severity of attacks. The recognition of these groups supplies the only hope available for forecasting an infarction, and it is my opinion, among others, that such patients be immediately started on anticoagulant therapy and treated as a myocardial infarction until the course makes sufficiently clear that myocardial necrosis has not occurred. Prolonged therapy is as justifiable in these cases as in those who have had a demonstrable infarction.

Details of management of therapy, selection of anticoagulants, contraindication and discussion of hemorrhagic complications must be sought elsewhere.[1,3,4] The risk in well-controlled anti-

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Editorials

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VIVE LA DIFFERENCE

A December issue of *Life* magazine tells us about the pre-Presidential nomination activities of Adlai Stevenson, and about the effectiveness of the Democratic-Farmer-Labor political party in stirring up political interest; for example, in Duluth even the hospitals were canvassed—except, of course, the hospital that was the home of the rich Republicans. We understand that this exception to an otherwise universal canvass was made because of fund- or interest-raising expediency. And precisely there lies a difference that deserves iteration and reiteration, emphasis and re-emphasis.

After years of observation of the medical scene and the hospitals in Duluth, we know that to the physicians of Duluth, all of the hospitals house individual patients. Some of these patients are Republicans, some are DFL, some don't care, and some might even be mugwumps—but they are all individuals and patients. No physician, so far as we can learn, has ever avoided any hospital because it contained Republicans, DFL's, negroes, whites, Jews, Christians, or whatever. Mark this difference then: the *individual* is the focus for the attention of our independent practitioner of medicine, but the politician and political machine act on the basis of the political convictions or leanings of a *group*. No need to picture for you what might result when a patient with political leanings at variance with those of the party in power would seek medical care from a politically administered system of medical practice.

Preventive medicine may work on a *group* basis; military medicine may work on a *group* basis; but the medical care of one person must be personal and *individualized*. We say, long live the difference, and may we find forceful enough means to convince even our least sincere politicians of its profound reality.

H.G.M.

ORAL COMMUNICATION

Have you ever been surprised by a patient's explanation of what he thought you meant by your oral instructions? Undoubtedly, you knew exactly what you wanted him to do and you may have used words of one syllable. But somehow he just did not get the idea.

Who is at fault in this kind of communication failure? Is it the patient? Or is it you, the doctor? The human reaction is that it must be the patient. "How can anyone be so stupid as not to undestand me?" Unfortunately, such a diagnosis does not help us prevent future errors in communication.

The key to a good deal of our communication failure is in the phrase, "He didn't get the idea." How does one get an idea? Most of us seem to have the notion that an idea is something exact that can be communicated from one person to another in the same way water is transmitted through a pipe. As beautifully simple and desirable as this notion is, it is psychologically unsound. Words are merely symbols for things within our own experience. The idea you, the doctor, have is colored by all of your years of medical schooling and experience. The idea the patient gets is colored by his strange modern world of pseudo-scientific advertising, a world in which science and magic are one. Radio and TV tell him about new "scientific" discoveries which would put any witch doctor to shame. The patient "knows" about "immediate relief from pains of arthritis and neuritis." Is it any wonder that the patient comes to you expecting some pretty high power mumbo jumbo?

Sensing the difficulty of communicating with a patient, many doctors have adopted the policy of telling the patient as little as possible. Whatever they do tell him is then phrased in such technical language that he cannot understand anyway. Unfortunately, this approach only furthers the patient's notion that medicine and magic are brothers. The patient gives up trying to understand his ailment and instead puts himself into the complete trust of the doctor just as his primitive brother used to do with the tribal medicine man.

In order to improve oral communication with the patient, the doctor must strive toward a two-way flow of communication. Merely asking the patient whether he understands your instructions is not enough. Because of pure ignorance, the patient will answer, "Yes." This tells the doctor

nothing as to the degree of understanding which has taken place. A better approach is to provide the patient with a few of the facts phrased in non-technical language and then lead the patient into a discussion of his case.

Although better oral communication with the patient will demand more time from the doctor, the time spent may be a good investment. The possibility of the patient's taking better care of himself, the dispelling of the note of magic in medicine, and the development of a more sympathetic attitude toward the medical profession are only a few of the possible outcomes of better oral communication.

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PSYCHOSOMATIC MEDICINE

Psychosomatic medicine, in the strict sense of the word, refers to a specific group of stress disturbances manifested by autonomic nervous system or endocrine dysfunction, and apparently caused by a combination of psychological and somatic factors. Psychosomatic medicine is not synonymous with psychiatry; it does not include all illnesses with psychological and somatic factors in either causes, symptoms, results or sequelae (or it would be synonymous with the whole field of medicine); and it is not properly a definition of conditions, such as suicide, with emotional causes and somatic consequences.

The primary concern with psychological factors expressed by most investigators in psychosomatic medicine results mainly from the greater promise these factors give of developing a more effective treatment approach, and not because the somatic factors are less important. Earlier expectations that a specific personality pattern could be found for each psychosomatic illness have not materialized; current investigations suggest that patients with psychosomatic disturbances of any kind rely primarily on the mechanisms of unconscious repression and reaction formation to conceal from themselves and others residual dependent strivings and aggressive impulses. As children, they apparently failed for various reasons to satisfy the strivings or to find appropriate outlets for the impulses; at the same time they developed enough personality strength to keep these unresolved problems from obvious interference with their adjustment to the environment. Consequently, they seldom appear "neurotic," to themselves or to others, and often resist exploration of their personality problems.

However, these disturbances are for the most part progressive and disabling, and the psychological factors do not respond well unless treated early. Therefore, the physician should search for contributory psychological as well as somatic components at the time of the initial diagnosis of psychosomatic illnesses such as peptic ulcer, ulcerative colitis, essential hypertension, thyrotoxicosis, glaucoma, migraine, rheumatoid arthritis, and certain types of bronchial asthma and eczema. An early assessment of the relative significance and treatability of each factor in each individual case expedites the planning of treatment. Although absolute proof is lacking, there is strong evidence that treatment of psychological factors reduces the frequency and intensity of exacerbations, and delays the development of irreversible changes in many of these conditions.

C. KNIGHT ALDRICH, M.D.

PRESENT TREATMENT OF PULMONARY EMPHYSEMA

Despite the unknown etiology of chronic pulmonary emphysema, significant advances in therapy have been made in the past decade based on the alterations in physio-pathology in this disease. With no single specific "cure" available, the complexity of proper management requires a knowledge of cardio-respiratory physiology, clinical bacteriology, allergy, and the pharmacology of bronchodilator and corticosteroid agents. More recently, the psychotherapist and thoracic surgeon have become a part of the therapeutic "team."

Improvement in the ventilatory function of the lungs results from the use of measures designed to (1) relieve bronchospasm, (2) aid in the elimination of retained secretions, (3) control sinobronchopulmonary infection, (4) correct hypoxia and disturbances in acid-base balance and (5) reduce the state of hyperinflation of the chest and promote diaphragmatic breathing.

The inhalation of sympathomimetic aerosols such as racemic epinephrine (Vaponefrin) or isopropyl arterenol (Isuprel) are of great value in the relaxation of bronchospasm. Deliberate coughing following aerosol inhalation frequently aids in the expectoration of retained mucus. Oral administration of aminophyllin and ephedrine may be use-

ful in long-term management. With more severe bronchospasm, the rectal administration of aminophyllin dissolved in water has been more effective. The use of the corticosteroids and prednisone may be life-saving in the presence of intractable bronchospasm. These are especially useful when persistent, severe obstructive dyspnea follows an upper respiratory infection or exposure to a specific allergen such as pollen.

The use of saturated solutions of potassium iodide, syrup of ipecac and intermittent courses of Fowler's solution may aid the patient in his ability to expectorate viscid sputa. Lowering of the surface tension as well as humidification is obtained with detergent aerosols such as Alevaire (0.125 per cent oxyethylated tertiary octylphenol formaldehyde polymer). In the presence of tenacious purulent secretions, the use of a proteolytic enzyme aerosol such as Tryptar (crystallin trypsin) or Pancreatic Dornase (pancreatic desoxyribonuclease) has been used. There has been some disagreement as to their effectiveness and local irritation consisting of pharyngitis and glossitis has been encountered with Tryptar aerosol when inhaled for five days or more. The most useful of the mechanical methods of accomplishing bronchial drainage in co-operative patients is Exsufflation with Negative Pressure (EWNP). The high expiratory flow rate achieved with this device is often responsible for aiding in the elimination of mucopurulent plugs which the patient cannot expectorate with his natural cough. Intermittent pressure breathing devices, such as the Bennett, M.S.A., Emerson and Halliburton, while helpful in conjunction with aerosol therapy especially when the alveolar ventilation is inadequate, do not provide adequate changes in pressure gradient necessary to simulate cough.

Aerosol therapy with penicillin and/or other antibiotics is indicated in the treatment of a coexisting sinusitis, bronchitis or bronchiectasis. The long-term arrest of chronic bacterial infection plays an important role in the management of the patient with pulmonary emphysema. The broad spectrum antibiotics, administered orally for periods of six to ten days, are especially useful in acute suppurative infections of the sinuses and bronchi that frequently follow a "common cold." Prolonged use of the broad spectrum antibiotics may be hazardous since a change in bacteriologic flora with superinfection or the emergence of a resistant organism has been encountered.

The relief of hypoxia by oxygen therapy is often necessary especially during an acute exacerbation of obstructive dyspnea. The sudden administration of high concentrations of oxygen may produce hypoventilation, retention of carbon dioxide, and respiratory acidosis accompanied by disturbances in the state of consciousness, coma and death. Oxygen therapy should be begun with low concentrations provided by a 1 or 2 liter flow per minute, administered with a double-bent nasal catheter. The oxygen concentration may be raised gradually, a liter per minute each day, until a level of 6 liters per minute is reached; a gradual reduction, usually requiring five to seven days, should be employed at the termination of therapy. The treatment of respiratory acidosis requires the use of devices which increase the minute ventilation, such as the tank respirator, IPPB, or the Exsufflator with Negative Pressure in addition to steroid and bronchodilator therapy. The use of a carbonic anhydrase inhibitor (Diamox) has been of value in a few instances.

Overinflation of the lungs is reduced by manual compression of the lower ribs and upper abdomen after the inhalation of bronchodilator aerosols. Together with pursed lip-breathing during the expiratory phase of the respiratory cycle, more complete emptying of the alveoli is possible since these maneuvers tend to maintain a wider bronchial lumen and aid in the expulsion of retained secretions. The enhancement of diaphragmatic breathing by active and passive breathing exercises improves ventilatory efficiency and is, perhaps, the most valuable measure in the long-term management of patients with pulmonary emphysema. Training is facilitated by the head-down position or by placing a 10-pound weight over the lower abdomen. The patient is encouraged to inspire by diaphragmatic contraction with expiration aided by the increase in intra-abdominal pressure provided by the weight. These exercises are continued as a daily routine, and when properly learned, appreciable diaphragmatic movement occurs in the upright position. The use of an abdominal emphysema belt aids and encourages diaphragmatic breathing in the trained ambulatory patient. Pneumoperitoneum has been used infrequently and appears indicated only in a small percentage of asthenic patients in whom elevation of the diaphragm could not be achieved by exercise and a properly applied belt. The dangers of aeroembo-

lism, infection or hemorrhage have limited its applicability to the physician with specialized training.

HYLAN A. BICKERMAN, M.D.
Columbia University

DIVORCE AND FAMILY RELATIONSHIPS

Preparing and presenting petitions for divorce is one of the responsibilities of the Legal Aid Department of Family Service. No legal aid service is provided for any family whose income would permit the use of a private attorney. Clients come upon referral from the County Welfare Board, other social agencies, lawyers, former clients, and the citizenry in general who know of the service.

Due to the pressure of work in the attorney's office, there is a long delay between the request for a divorce petition and the drawing up of the papers. This interim period gives the caseworker who takes the application an opportunity to help both spouses try to find a way of living together which will give some satisfactions to the whole family.

Some homes have been broken long before the legal process occurs. Fathers or mothers may have left the community months or years ago. No address is known by the remaining partner nor by the paternal family or friends of the missing parent. Families could bear the physical separation if there were evidences of affection given them such as birthday cards, Christmas greetings, valentines, or a money gift now and then. But when families have experienced no evidence of love, let alone evidence of a feeling of responsibility from an absent parent, the actual obtaining of a divorce merely confirms a break already made.

Each parent bears a responsibility for making a happy home. Perhaps the marriage got off to a poor start because neither had a happy family as a pattern for future living. Perhaps the husband and wife have difficulty in making a good life because of a great difference in their own backgrounds. Sometimes the needs of one partner are so great they can scarcely be met by the other, no matter how much effort is put into the marriage. Helping families find a balance, satisfactory to them, may take a long time even though each partner tries.

Broken homes bring some problems to their members which might not have been taken into consideration when divorce was sought as a solution to other problems. Because children are usually given to the custody of the mother, she finds herself trying to be both father and mother. Her confidence has been shaken as a wife, yet, in that unenviable state of mind, she must meet emotional and maybe financial needs formerly shared by her husband, at least theoretically. Children are quick to take advantage of indecision, and the mother, unable to set limits for behavior, finds herself with less and less control of her children to their detriment. The father, too, has new problems. He may visit his family, but that is an artificial manner of association with his children, so unsatisfactory that he gradually drifts away, and becomes only the provider of a "court order" for which he gets little thanks or appreciation from his children, and only a feeling of frustration for himself.

Loneliness is hard to meet, so each may seek a new marriage. Second marriages of either partner can produce the same or different problems. There is the adjustment to the new parent, followed perhaps by adjustments to other children. There are the financial problems due to two families and loyalties to each.

While divorce is often a necessary result of long-continued unhappiness, it should be approached slowly and carefully, and only after counseling. Marriage counseling is available at Family Service for everyone who lives in the area supported by the Community Chest.

ALTHEA ATWATER
Legal Aid Consultant

TRAVELERS CHECKS AND LETTERS OF CREDIT

An item often neglected in planning summer vacations is the protection of travel funds. Nothing can spoil a vacation trip more completely than lost or stolen money.

Protecting your travel funds is really a simple matter. Just convert them into safe and convenient Travelers Checks at your bank. Travelers Checks can almost be called an international currency, because they're accepted everywhere and can be spent like cash anywhere with just your signature for identification. You sign them when you buy them, and countersign them when you cash them. It's the likeness of the two signatures that makes the checks cashable. For convenience, they come

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Fifth in a series on Family Service of Saint Paul—a Community Chest agency.

in denominations of $10, $20, $50 or $100, and they cost only 75 cents per $100 worth.

Travelers Letters of Credit are another bank service which protects funds. This service is of particular value to persons traveling abroad who wish to carry additional funds for emergency purposes, or for expensive purchases. It should be used to augment your Travelers Checks, not take the place of them. A Travelers Credit can be applied for at your bank. It is your bank's letter of instruction (in special form) to correspondent banks all over the world to pay you money as you request it, but not to exceed the amount stipulated in the Credit. Letters of Credit are usually not issued for amounts less than $1,000. At the time of issuance, you will be given a list of banks, and their locations, where you will be able to draw money under the credit. Payments will be made by these banks in the United States or foreign countries upon presentation of the Letter of Credit and your signature.

Because of the low cost and wide acceptance of Travelers Checks, Travelers Letters of Credit are not used as much as they once were. The main objections are the limitations on places and banks where cashable, and the fact that if the credit is lost or stolen it will cost the purchaser approximately $150 to have a stop payment placed against it. Travelers Checks, however, are safe, convenient, and can be spent anywhere at practically anytime. And if they are lost or stolen, your money will be promptly refunded at no cost. Don't spoil your vacation. Protect your travel funds by using Travelers Checks.

KENNETH F. MERRILL
The First National Bank of Saint Paul

NEW FIELDS AND RESPONSIBILITIES IN TUBERCULOSIS RESEARCH

At no time in history have so many avenues of approach been open to the investigator who would learn the secrets of tuberculosis. It must be admitted that so far the acquisition of basic dependable information has been difficult and slow, but there is now great hope that new advances, many of immediate practical importance, will soon be realized if current programs are expanded. A few examples can be cited.

Although it has been known for more than fifty years that a limited but definite immunity to tuberculosis can be induced by the use of dead or attenuated tubercle bacilli, the nature and location of that immunity and the specific antigen or antigens involved have been extremely elusive. The refinements of protein chemistry, tissue culture and other laboratory techniques now seem to be leading to some understanding of the mechanisms involved and perhaps to improved vaccines and specific tests for clinical tuberculous activity.

Dr. Emil Bogen in California has demonstrated the existence of several bacteriophage strains capable of lysing tubercle bacilli. From work in progess, it now appears that lysogenic tubercle bacilli also exist. It can be predicted confidently that cultivation of this new field would unearth a wealth of new knowledge.

The successes of modern drug and surgical treatment have hinted at spectacular developments and have received wide publicity, but the public is not sufficiently aware of the shortcomings of the therapeutic tools currently available. There are many failures in treatment. In selected cases, the results are often miraculous, but in many others the fatal outcome is merely delayed and relapses are frequent. Only three effective drugs are in general use, and none is completely bactericidal. All of them are so slow in their action they must be given for months and even years. New drugs and new combinations of drugs can be discovered and developed only through research.

We have a great need for the immediate expansion of tuberculosis studies. The catalyst is money. The Public Health Service, the Veterans Administration, the tuberculosis associations and other official and voluntary agencies are doing what they can but it is not enough. Surely, this nation which prides itself on doing the difficult immediately, and the impossible if given a little time, will not accept a stalemate in the battle against a lowly, single celled, non-motile plant which continues to sicken enough citizens every year to maintain a constant total of 400,000 active cases.*

FLOYD M. FELDMANN, M.D.

THE NURSING TEAM

The nursing team represents an attempt to provide high quality of nursing service at a time when the number of graduate and student professional nurses cannot keep pace with demand. Although their number is greater than at any other time in

*Estimate by Public Health Service and National Tuberculosis Association.

our nation's history, except during the Nurse Cadet Corps period, it has become necessary to utilize other personnel able to provide supplementary service.

Practical nurses, taught to contribute the more non-technical and non-judgmental aspects of nursing under the supervision of a professional nurse or physician are integrated into the nursing staff as members of the nursing team. Nurses' aids, trained on the job, are also members of the team in hospitals where they are employed. The team leader, sometimes a registered nurse and sometimes an able professional student, with her team is responsible for the care of the group of patients assigned to her by the head nurse. The leader will decide the best way to use the knowledge and skills of the individual team members to provide the highest possible quality of nursing for the team's group of patients, and she will supervise and teach the members of her team as they carry out their assigned duties.

To be effective, there are some very essential principles to be followed.

1. The entire hospital staff must be carefully oriented to the concept of team nursing and its methodology.

2. Professional nurse team-leadership must be adequate to provide indicated supervision of non-professional nurse members of the team.

3. All team members must believe in the philosophy of team work and must understand individual assignments thoroughly.

4. The team leader is administratively responsible for the patients in her group and therefore medical staff members should communicate with her in regard to their patients.

The personnel constituting a nursing team varies within the same hospital and from one hospital to another. In addition to the leader, the team may include other professional nurses—graduate and student, practical nurses—graduate and student, nurses' aids, and orderlies. On the other hand, any one or more of these may be absent.

If members of the medical staff in a hospital find nursing service being provided by nurse teams and are a bit confused by it, they will find members of the nursing staff most eager to discuss the concept with them either individually or at a medical staff meeting.

MYRTLE H. COE
School of Nursing
University of Minnesota

LOCKED TWINS, CHIN TO CHIN, OBSTRUCTING LABOR

(Continued from Page 36)

Comment

An x-ray picture of all twin pregnancies for diagnosis of fetal positions early in labor is desirable; if the first fetus presents by breech or footling, x-ray is essential.

Discussion

Dr. Roger Countryman, St. Paul, presented a report of chin-to-chin locked twins. A short very active labor brought the breech of the first baby through the introitus before unlocking of the heads was possible. Decapitation became necessary for delivery of the first twin. The second twin was delivered normally and survived.

Dr. Leonard A. Lang, Minneapolis, presented a report of chin-to-chin locked twins. When the breech of the first did not descend readily, x-ray was taken, revealing the locked chins. He was successful in pushing up the breech of the first twin, unlocking them, and then was able to deliver both twins alive.

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R. H. WILSON, M.D.

President, Minnesota State Medical Association

President's Letter

To Members of the Minnesota State Medical Association:

This is my first message to you as President of your Association, and I want to take this opportunity, first, to wish you all a very happy and prosperous New Year. I want to take this opportunity, also, to express my deep appreciation of the honor you have conferred on me. I hope I may prove worthy of it.

I would also like to be the worthy representative, especially, of that great group of men who practice good medicine outside the big cities of the state, some of them hundreds of miles from the great centers of teaching and research. These are the men who man the battle stations of medicine, and I hope that I can say, when January rolls around again next year, that I have helped a little to protect their freedom as doctors and to keep their standards high.

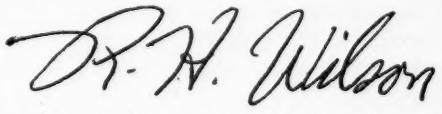
To do so, I shall certainly need the help of the Council and officers of the State Association for their invaluable wisdom and experience. I shall also need the help of county medical society officials all over the state. They are busy men, I know, and they have little time for anything outside their own programs and problems. But I am going to count heavily on them, too, because the success or failure of our work as an organization depends largely on how well we meet their needs.

It is certainly true that times are good as we begin this year of 1956. Furthermore, our patients have confidence in us, as many recent surveys have shown. But the millenium in medicine has not arrived, for all that.

There are still threats of regimentation on the horizon, though they are taking on new forms. Welfare costs are rising, and physicians unfairly get the brunt of the blame for that. Some Minnesota towns are still without doctors, and more doctors and hospitals are needed in many areas of the state. These seem to be perennial problems. There are others, and our state organization must be geared to meet them all.

As chairman of a committee which has dealt for many years with welfare and relief, I have seen how the close and conscientious co-operation of medical organization with the official agencies can operate to solve many of the major welfare problems in this state. I am confident that the same kind of co-operation in other fields will go a long way toward keeping medicine free and standards of practice high in Minnesota.

I follow a long line of distinguished and dedicated men who have devoted themselves to that end. I cannot do better than to follow in the spirit in which they have led.



President, Minnesota State Medical Association

Medical Economics

Edited by the
Committee on Medical Economics,
Minnesota State Medical Association
George Earl, M.D., Chairman

SOCIAL SECURITY—BIG ISSUE IN 1956

Every physician who is conscious of his duties as a citizen should now be taking an active interest in a timely issue which the American Medical Association considers of great importance—not only to the medical profession but to all of the American people.

That issue is HR 7225, a bill passed by the United States House of Representatives last summer near the end of the Congressional session. This bill, known as the Social Security Amendments of 1955, was first rushed through the House Ways and Means Committee without public hearings. Then it was passed in the House, by a vote of 372 to 31, under a suspension of the rules which barred amendments and limited debate to forty minutes. The Senate Finance Committee, however, refused to take hasty action on a bill of such major importance. After hearing the many serious questions raised by Mrs. Hobby, then Secretary of the Department of Health, Education and Welfare, the Committee decided to hold extensive public hearings during the second session of the 84th Congress.

Just what is this legislation that appears to be so politically attractive to individuals with an eye on the 1956 elections? Why was the House majority leadership so determined to avoid open hearings and normal debate? Let's take a brief look at the main provisions of the bill.

This is the legislation which would lower the Social Security retirement age for women from sixty-five to sixty-two; extend monthly benefits for permanently and totally disabled children beyond the age of eighteen; expand compulsory social security coverage to all self-employed professional groups except physicians, and raise social security taxes over and above the increases already scheduled for the next twenty years. Those provisions alone demand careful study of their effects on the philosophy, scope and financial stability of our social security system.

Serious Implications in Bill

The most controversial section of the bill, however, is the one which would make permanently and totally disabled persons eligible to receive their social security retirement benefits at age fifty instead of sixty-five. It is this section which is of particular concern to the medical professsion. It is of far greater concern than the question of voluntary or compulsory coverage of physicians under the Social Security system. That is a separate issue which we are not discussing in this editorial. The plan for a national system of permanent and total disability benefits has far more serious implications for medicine and the nation.

It raises questions such as these: Is there any real need for a federal program? What are the facts on permanent and total disability? Won't this duplicate or overlap existing programs of assistance and rehabilitation? What effect will cash handouts have on a patient's incentive to be rehabilitated? Won't this extend federal control over physicians? —and, finally—How will this affect the future of medical practice? Will this lead, step by step, to the lowering and eventual elimination of the age-fifty eligibility requirement; then, cash benefits for the dependents of those who are permanently and totally disabled; then, a temporary disability benefits program; then, cash benefits or direct government payments for hospital or medical costs, and then, ultimately, a full-fledged system of government health insurance?

These are but a few of the many grave questions which already have been raised concerning this legislation. As physicians, we must be concerned over the medical aspects of the problem. As citizens, we also must be concerned over the trends and implications in the never-ending expansion of our social security system. The minority report of the House Ways and Means Committee expressed it this way:

> "We do not believe that our committee has discharged its obligation to either the Congress or to the American people by its brief and closed-door consideration of this vital legislation. We have sought to point out the grave social and economic implications of the bill. We have dwelt at some length with the staggering ultimate costs of this developing program, because we do not believe that either the Congress or the public has any conception of its magnitude."

Our social security system now has reached the point where any further changes may have a profound influence on the nation's economic, social and political future. The time has come to face up to the question of just what social security should accomplish and just where it should stop. The Association strongly *urges* that the social security issue be taken out of the arena of vote-catching politics; that there be an objective, thorough study of social security in all its present and future aspects, and that the facts and realities emerging from such a study be used as the basis for a sound national decision on this vital issue. It especially protests precipitate action on the complex question of disability without thorough investigation of alternative mechanisms.

In our opinion, that is a reasonable, responsible policy that deserves the moral and intellectual support of every physician.

NORTH CENTRAL MEDICAL CONFERENCE MEETS IN SAINT PAUL

The North Central Medical Conference had its usual vigorous, well-attended meeting this year on November 20 in Saint Paul. Lay-sponsored Medical Plans and the Relationship Between Physicians and Hospitals were reported on and discussed.

Medicine has been progressing in giant steps during the past few years. The health of the citizens of this country has never been so good or received such wise and competent care. Yet doctors, as guardians of the public health, must be more alert than ever to protect the quality of this care. Panaceas that offer solutions to health problems are often deceptive. One of the most important functions of the North Central Medical Conference was to raise pertinent questions about some of the current cure-all plans.

Doctor Earl Notes Current Trends

Dr. George Earl keynoted the meeting with his presidential address, a general discussion of trends in health care today.

Some of the most important of these trends are:

1. More individual voluntary prepayment health insurance and/or services.
2. More group arrangements for such services.
3. More unions or co-operatives handling health problems.
4. More provisions for large veterans' installations and medical care, and for tax-supported hospitals of all types.
5. More public health nursing services and activities.
6. More lay-controlled groups, outside of unions and co-operatives, sponsoring health care plans and services.
7. More political activities and interest, with increasing legislative enactment in the health field.
8. A general increase in the public's health consciousness and what can be done to make the nation's health better.

Must Take Stand on Legislation

Dr. Earl said:

"Politics have become bound up with matters of health care and medicine has found itself in a position where it must make political decisions. When our lawmakers move toward legislation affecting medicine, we as a profession must consider it carefully in the light of all previous experience, and take a definite stand on its merits."

Lay-sponsored Medical Plans

E. L. Bernhart, M.D., president of the State Medical Society of Wisconsin; J. E. Kelsey, M.D., Des Moines, Iowa; and A. O. Swenson, M.D., president of the Minnesota State Medical Association, spoke on lay-sponsored medical plans.

Dr. Bernhart favored expansion of Blue Shield and other prepayment plans to greater numbers of people. But the cost of these programs must be kept within the budget of industry and within the reach of the individual members, he said.

"More than 150 million people can be enrolled under the voluntary system of health insurance if we have the whole-hearted support of the medical profession," he said, "and only with this attitude will we avoid the destruction of the private practice of medicine. Only with this attitude will we preserve the gains we have made. The legislative hoppers of states and the United States contain many dormant proposals which, in the light of today's economy, would put Wagner, Murray, and Dingell to shame as social planners . . ."

Dr. Bernhart added:

"Industry pays the bill for prepaid medical insurance. Labor seeks to extend the benefits of prepayment. The medical profession can and will render those services to the mutual advantage of all and will continue to do so on a voluntary basis when they look the facts in the face."

Doctor Kelsey Talks on Kaiser Foundation

There are more than 525 physicians participating in the health plan of the Kaiser Foundation and facilities, including eleven hospitals and many clinics with a total bed capacity of about 2,000. To call this a medical empire is no exaggeration.

According to Dr. Kelsey, the plan is successful; it is popular; and many of the facilities are outstanding. The cost to the patient is roughly equivalent to that of other voluntary insurance plans in California. Why, then, is there opposition to the plan in the medical profession?

Organized medicine's opposition has been to the "closed panel" aspect of the group. To counteract such plans, Dr. Kelsey recommends, ". . . the establishment of a method of comprehensive coverage for disease, which is prepaid, which can be offered to all income groups, comprehensive in scope, and which permits a free patient-doctor relationship and a free exchange of ideas between all physicians. Kaiser and other closed panel plans will continue to grow until this challenge is met."

Union Medical Care Plans Expanding

Dr. A. O. Swenson described the history of union medical care plans which gained impetus during World War II when wage increases were practically halted. Health and welfare plans became of prime importance in union-management negotiations.

Those advocating co-operative systems of medical care are insistent on lay control, comprehensive care and preventive medicine associated with group practice. The insurance principle is ignored.

Dr. Swenson suggested that a definite set of policies be developed for medicine to follow in consultation about these plans. Medical care problems relating to sanitation, safety and preventive medicine in industrial plants should be paid for by management. Medicine should take the leadership in the area of fringe benefits concerning health and in developing medical care plans that are adequate for both preventive and curative medicine. The development of lay-sponsored clinics has not been satisfactory due to the lack of personalized service, loss of efficiency and the removal of competitive influence.

Physician-Hospital Relationships

F. C. Coleman, M.D., Des Moines, Iowa; A. J. Offerman, M.D., Omaha, Nebraska; and D. H. Breit, M.D., Sioux Falls, S. D., covered the drastic change in physician-hospital relationships in the past quarter century. The hospital originally was built and operated by the doctor to care for his ill patients more effectively. Now the function of the hospitals has expanded to include many more services and lay personnel has taken over the responsibilities of administration.

Among the reasons for this shift is the fact that there are many more diagnostic procedures, some utilizing radiology and pathology, and the most convenient place for this equipment is the hospital. Gradually, radiologists and pathologists have "set up practice" in hospitals, sometimes being paid directly by the hospital. This has led to the adoption, among some hospital administrators, of the premise that the next step is for the hospitals to employ physicians generally as salaried personnel. The implications are serious.

Dr. Coleman discussed a lawsuit of the Iowa Hospital Association and thirty-four member hospitals against the Attorney General, the Iowa State Board of Medical Examiners, and the Iowa Association of Pathologists. Since the Conference, this suit has been settled against the plaintiff. It was the conclusion of the Court that work done by the pathologist and radiologist constitutes the practice of medicine. Hospitals should not sell the services of these specialists. This decision will have an important influence on hospital-physician relationships.

Good relations exist between hospitals and medical groups in Nebraska. The foundation of this satisfactory relationship, according to Dr. A. J. Offerman, was the exclusion of benefits for medical services in the Blue Cross contract.

In his discussion, Dr. Breit emphasized that a sharp distinction should be maintained between hospital and medical services. Medical services should be under the unhampered direction of physicians and the energies of hospital administrations and personnel could be directed toward the original purpose of caring for the sick.

At this moment, it is exceedingly important that the decrease in the number of new cases of clinical tuberculosis evolving and the precipitous decline in mortality are not interpreted as the approach of immediate ultimate victory over tuberculosis. Such an interpretation could play into the hands of the tubercle bacillus, which could soon again become as widespread and destructive as it was in this country fifty years ago. The phenomenal success in reducing morbidity and mortality represents a battle less than half won against the tubercle bacillus.—Editorial, J. ARTHUR MYERS, M.D., *Journal-Lancet,* April, 1955.

The Dean's Page

WANTED: MORE APPLICANTS FOR MEDICAL SCHOOL

Surprisingly, for most physicians, every medical school in the United States might well hang out such a sign on its front door . This does not mean that medical schools do not have sufficient number of applicants to fill their classes. It does mean that the number of well-qualified applicants has dropped to a point that Admissions Committees have become deeply concerned about the quality of the last ten or twenty students accepted.

The peak of applications for admission to the medical schools of this country was in 1949-50 when 24,434 individuals applied for 7,042 places in freshman medical school classes. Last year, the number of applicants had dropped to 14,538 individuals for 7,449 places.

The University of Minnesota had 298 applicants worthy of serious consideration for 126 places; while the University of Wisconsin had 167 applicants for 82 places; Iowa, 144 applicants for 120 places; and Michigan, 512 applicants for 204 places.

The competence of the medical profession depends more upon the quality, that is, upon the ability and the character of the medical students, than upon any other single factor. It is essential, therefore, not only that medical schools be able to fill their classes with acceptable applicants, but that they be able to select students of superior qualifications.

This leads to the question as to why, in view of the splendid opportunities in medicine, there are not more young men and women applying for admission to medical schools. The answer certainly is a complex one; but two major factors are that most young men and young women do not really understand the splendid opportunities available to them in the profession of medicine, and there is a very widespread impression that it is practically impossible to gain admission to a medical school.

A high school principal in an out-state community of Minnesota recently told me that in his eight years of service in that position, not a single student had entered premedical courses, while several able young men each year entered colleges of engineering. The engineering societies of the state, he said, send a representative to his high school each year to talk to and counsel with students about opportunities in engineering, but never has anyone come to speak about careers in medicine. In fact, it was his impression that medical schools are so flooded with applications that they are not interested in receiving any more.

This being true, I would urge physicians of the state to encourage young men and women of ability and character to consider the great opportunities and satisfactions which a career in medicine can afford them. And, supplementing individual efforts, I would urge county medical societies to arrange to have representatives of the medical profession carry this message into the high schools of the state as is currently being done by engineering and other groups.

—HAROLD S. DIEHL, *Dean*
University of Minnesota Medical School

History of Medicine in Minnesota

THE MEDICAL HISTORY OF RICE COUNTY
(1855-1901)

ADOLPH M. HANSON, M.D.
Faribault, Minnesota

"It was natural that the lamp should be a frail earthen thing in comparison to the light within, for it had not created it and only held it for a short moment."—*Pilgrim's Inn* (by Elizabeth Goudge).

This short medical history of Rice County in the State of Minnesota dates from the summer of the year 1855, when **Nathan Marvin Bemis, M.D.,** established his practice at Faribault, to and including the year 1901.

The following biographical sketch was published in the local weekly newspaper immediately following his decease:

"Nathan Marvin Bemis, M.D., the first physician to settle permanently in Faribault, was born in Whitingham, Windham County, Vermont, March 25, 1821, his ancestors being English, his father a farmer, with whom he remained until eighteen years of age. He afterwards studied medicine with Dr. Horace Smith of Wilmington, and finally attended the Vermont Medical College at Woodstock. After his graduation he practiced medicine three years in Shutesbury, Mass., and nine or ten years at Cummington, the same state. In May, 1855, he came to Faribault. Then there was but one frame house in the place, which belonged to Alexander Faribault. The Sioux were still here, and the Doctor was called upon for medical services by two of their chiefs, Papa and Red Legs. His professional rides covered a large extent of territory, and probably few physicians of the state have ridden over more miles of our country roads than he. In early life he was an abolitionist, and voted for James G. Birney. After the Republican party was formed he allied himself with that organization. Among Free Masons he was a Knight Templar, and was one of the oldest, if not the oldest Mason in the city. He has twice been Master of the Faribault Blue Lodge and Noble Grand of the Odd Fellows three times. Dr. Bemis was married February 10, 1842, his wife being Miss Emeline H. Adams, of Heath, Mass., who survives him. They have had five children, all of whom are living save one son, George O., who died when but three years of age. The four living children are Dr. J. G. Bemis, of Chicago, Ill; Mrs. W. G. Kerr, of Englewood Heights, Ill.; Mrs. H. C. Prescott and Mrs. D. N. Graves, of Faribault."

Dr. Nathan Marvin Bemis died on the 29th day of January in the year 1891. He practiced elsewhere for twelve to thirteen years and in Faribault for thirty-six years—a total of forty-eight or forty-nine years. His age at death was seventy years, nine months, and four days.

The same newspaper announcement of his death states further:

"Perhaps no resident of the county has been more widely known than Dr. Bemis. The first physician that settled in Faribault, for thirty-six years he has pursued his arduous calling, ministering to the demands of afflicted humanity of all classes with a faithfulness and devotion to duty which have commanded the respect and admiration of all who were familiar with his professional career. Only the pioneers can fully appreciate the sacrifices and personal endurance required of a physician at the early day when the Doctor commenced practice in Rice county—the response to calls at all hours of the day and night, involving the traversing of miserable apologies for roads, the crossing of dangerous sloughs, the fording of swollen streams, the braving of wintry blizzards, with the mercury far below the freezing point, while the drifting snow shrouded from sight the few landmarks by which the traveller might shape his course.

"The Doctor was esteemed not alone for his talents as a physician, but for his many virtues as a citizen. He was a man of active intellect, and well informed in all the affairs that challenge public attention. Tho his name was often suggested in connection with public office, for which his talent and standing qualified him, he invariably declined to leave the ranks of private life. His nature was genial and kindly, and his disposition to co-operate with his fellowmen in active benevolence was manifested in his society attachments, he having been a charter member of both the Masons and the Odd Fellows organizations. At the time he joined the former there was no branch of the order in the country, and he went to St. Paul for initiation. He was also a charter member of the Knights Templars."

Dr. Nathan Marvin Bemis is the grand old pioneer of medicine in Rice county. He had that reverence for human life that made him "the lover of life (who) sees the flame in our dust and a gift in our breath." To help prolong it for others was his lifelong devotion.

Nature's nobleman, he is the grand old man of the medical profession here in Rice county. He represents that high ideal which prompts so many of our best youth to choose the healing art as life's vocation. He undoubtedly was responsible for the rather high standard of medical ethics in which the welfare of the patient was the prime consideration, and of which the medical profession in this county may rightly be proud. Despite personal differences, or even personal animosities, professional jealousies, et cetera, the Rice County Medical Society has always presented a solid front on all fundamental moral issues and has stood as one man in regard to good medical ethics. This has been so since the days of Bemis, Rose and Wood.

When Dr. Bemis arrived to establish his practice at the little White settlement in the Indian village of the Wau-pa-ku-ta Dakotas (Sioux) in May, 1855, his brother, Dr. Lewis Bemis, who came to Faribault about the 1st of March in the same year, departed for St. Paul. St. Paul, the largest white settlement in Minnesota in that year of 1855, was then a town of only 7,000 inhabitants.

Dr. Nathan Marvin Bemis, some months earlier, had debarked from a Mississippi steamboat at Hastings. He did not take the overland stage-route of 70 miles from Hastings to Faribault. He went on by a smaller steamboat to St. Paul where he had originally planned to settle down. There he heard of the little white and Indian village on the peninsula formed by the confluence of the Owatonna (Straight) River with the larger Cannon River. So, out of curiosity, the thirty-four-year-old physician took the trails leading south to look it over.

The last stage of his journey was made on the old winding road, east of the present highways, from the present site of Northfield to Faribault.

He had already fallen in love with the Upper *Mechi-sibi* (Indian: *mechi,* great; *sibi,* river), its plains, gently rolling hills and valleys, huge stands of timber, and countless lakes and streams teeming with fish. He saw what is now southeastern Minnesota as Mother Nature made it. It was then even more of a second Garden of Eden than it now is. What was more, the still young and vigorous pioneer physician fell ardently in love with the site of the village of the Wau-pa-ku-ta Dakota Indians, a tribe of the Sioux nation, the "Iroquois of the West," and decided to make it the home of self and family. And at Faribault he was to remain and to die in a bed in his own house, one of the oldest in the town of 1891, loved, respected, and mourned by people throughout Rice and adjacent counties.

As remembered by Mrs. Ina Smith, his granddaughter, still living here in Faribault, Dr. Nathan Marvin Bemis, several years before his death in 1891, had an impressive personality. Of average height and weight a little over 200 pounds, he was baldheaded on the crown, his white side-and-back locks came to his shoulders,

and his enormous white beard was the talk of all who knew him. In his last years he was afflicted with a heart ailment. Because of this, and because he continued in practice despite his own affliction, his good wife would not allow him to go out alone on his professional calls. Either she, or the doctor's hired man (a young newcomer-lad by the name of Nils N. Ronning, who came to his house as a boy of seventeen), drove his horse and/or horses for him, depending upon whether town or country call. In order to have ample room for himself and his wife, a cozy body (who also weighed over 200 lbs.), and leave ample space between them for his professional bags and case of assorted drugs, his buggies were custom-built with a very wide seat. For most of his years in practice he drove a sulky drawn by a fast trotter when making his calls in town and on near-by country visits in nice summer-weather.

Mr. Nils N. Ronning, still living at age eighty-three (graduated from Faribault High School and the University of Minnesota to become a well-known editor, the author of many books, biographies, short histories, et cetera), has the following to say of Dr. Bemis, soon after he became his hired man, as the high school lad, for his board, room, and laundry, in his book entitled *Fifty Years in America:*

"In the fall I went back to Faribault where my brother lived and had one of his congregations. I was to attend the public school and at the same time earn my room and board at the home of Dr. Bemis by taking care of his horses.

"To my surprise I was given a place at the table with the family. I had expected that I was to take my meals in the kitchen.

"As my English vocabulary was very limited, Dr. Bemis had some difficulty in making me understand that when he rapped at the door and said, Nils, Tom, it meant that I was to harness Tom. If there ever was a beautiful, gentle, intelligent horse, Tom was that horse. He could run very fast and he always wanted to run. Sometimes I went with the doctor out into the country. Then Tom would be given free reins. 'Have you horses in Norway that can run as fast as Tom?' the doctor would ask me. 'No, sir,' was my answer.

"One day Dr. Bemis asked me to bring him something. As the weather was cold I thought he wanted the blanket. When I brought him the blanket, he tore it out of my hand, ran to the stable and brought back a whip. He cried, 'Whip, whip, whip.' Even now I know the difference between a blanket and a whip.

"The doctor must have seen me standing in front of the posters announcing a circus, for he took me with him to the circus. He was an old man with white hair and a long white beard. He was a dignified man, but that day he threw dignity to the winds. We drank pink lemonade and ate peanuts; we looked at the animals, and he told me their names. If I got a 'kick' out of looking at the performances—and I did—he got a 'kick' out of watching me. When we came home, Mrs. Bemis asked me to tell her what I had seen. When words failed me, I used my hands and feet. I think I gave her a very good idea of how the clowns had acted."

This word-picture that Nils N. Ronning paints of Dr. Nathan Marvin Bemis and his good wife in their advanced years is one of two intelligent, understanding, friendly and fun-loving persons, who must have been generally loved as well as respected. With a deep understanding of human nature, in love with humanity and life, we could paint no truer picture of the ideal family doctor and the doctor's good wife.

This biographic sketch of Dr. Nathan Marvin Bemis, as the grand old man of the medical profession here in Rice county, is written in some detail as a word-picture of the medical man devoted to the art as his special calling. It is one of the medical doctor, who comes to a community, settles down to establish his practice and his home amongst the people he makes his neighbors for the remainder of his days. He was everybody's friend, willing to serve anyone who required and called for his services, whether able and/or willing to pay for them or not. And he did so to the last. He was a man who chose to wear himself out in the service of his fellow-

beings in his special field of lifesaving rather than apply himself to less arduous tasks bringing higher remunerations in money.* The coldest science becomes tinged with compassion in direct personal contact with human suffering, has one but a little reverence for life—that vital principle of conscious organic life, which is the eternal mystery and marvel to the thinking mind.

In the "Official Register of Physicians, Minnesota, 1883-1890" the following licensed medical doctors practicing in Rice county in the course of those years are listed:

Name	*School*	*When Licensed*
Bemis, N. M.	Vermont Medical College, 1842	Feb. 25, 1887
Brubaker, Evans E.[1]	Starling Medical College, Ohio, 1878	Jan. 28, 1884
Coe, Samuel B.	Western Reserve, 1886	May 4, 1886
Cool, Daniel M.	Rush Medical College, 1862	Nov. 16, 1883
Coon, Hiram L.[1]	Rush Medical College, 1855	Oct. 11, 1883
Denninger, P. J.	H. Medical College, Chicago, 1887	Apr. 22, 1884
Dight, Charles Fremont	University of Michigan, 1879	Oct. 4, 1889
Gadbois, Wilfred	University of Victoria, 1887	May 11, 1887
Gibson, W. C.[2]	License by Examination	Dec. 10, 1886
Goulet, R.	University of Victoria, 1883	Mar. 21, 1885
Greaves, William[1]	University of Michigan, 1870	Oct. 11, 1883
Hunt, Wm. A.[1]	University of Michigan, 1882	Dec. 31, 1883
Jackson, R. H.	Long Island College Hospital, 1880	Nov. 16, 1883
Knight, Geo. H.	University of New York City, 1881	Oct. 13, 1883
Lynde, C. V.	Hahneman Medical College, 1883	Dec. 23, 1886
Nelson, Louis F.	University of Maryland, 1849	Nov. 12, 1883
Phillip, J. R.[3]	University of Victoria, 1884	Nov. 10, 1884
Pringle, A. F.[1]	McGill University, 1880	Mar. 10, 1885
Rockwell, C. B.	Homeopathic Medical College, 1883	Dec. 31, 1883
Rose, F. M.	Starling Medical College, 1861	Oct. 13, 1883
Seeley, J. S.	University of Michigan, 1876	Apr. 15, 1884
Wagner, C. H.	Homeopathic Hospital College, 1873	Nov. 26, 1883
Wood, George W.	McGill University, 1863	Oct. 13, 1883

1. Northfield
2. Morristown
3. Dundas
   Faribault not specified

The first Rice County Medical Society was organized on February 27, 1867. The officers were: Dr. N. M. Bemis, President; Dr. F. H. Atkins, Secretary; Dr. H. N. Dale, Treasurer.

The other members were: John L. Scofield, Northfield; E. Lathrop, Northfield; J. W. Daniels, Faribault; Edward Everett, Faribault.

The society was reorganized on February 11, 1885, with the following officers: H. L. Coon, President; G. W. Wood, First Vice President; C. M. Cool, Second Vice President; W. A. Hunt, Secretary; R. N. Jackson, Treasurer.

In January of the year 1886, the name of the society was changed to "Cannon Valley Medical Society," because it admitted medical men in adjoining counties to membership.

*Nathan Marvin Bemis, M.D., attended Cole Younger and his companions at the Rice County Jail, Faribault, after their capture. He met them near Millersburg before the Northfield robbery. He recognized them at once upon his arrival at the jail to attend the wounded Cole Younger.

The Sisters at Bethlehem Academy presented him with a ring in appreciation of his attendance on them and their pupils in illness.

Biographies

Bemis, Nathan Marvin.—His professional life's story has already been told. It is, however, interesting to mark that, though he established his permanent residence and practice in Faribault in the year 1855, he did not take the time and trouble to secure his medical license until February 25, 1887. This was nearly thirty-two years later.

(Because John L. Scofield filled the place of the highly respected, grand old pioneer medical doctor in Northfield, as did his contemporary professional brother, Nathan Marvin Bemis, in Faribault, the writer deemed him worthy of mention immediately following Dr. Bemis, even though his surname does not follow in alphabetical order.)

Scofield, John Lozier.—Born in Stamford, Connecticut, on July 23, 1811. His parents, residents of New York City, were visiting friends at Stamford at the time. He graduated from the Medical School of the University of Pennsylvania (the oldest medical school in the United States having its charter from the University of Edinburgh, Scotland) in 1832. He started practice in New York City. Subsequently, he went to Jacksonville, Florida, where he remained only for a short time. From there he went to Raymond, Racine County, Wisconsin. On July 24, he married Miss Betty A. Dibble. With the exception of the two years (1849-1850) spent in California, he remained at Raymond until the year 1856, when he removed to Northfield, Rice County, Minnesota. He was Northfield's *first* and, for many years, *only* physician. Upon his arrival at Northfield, he immediately made a claim to land about four miles south of the village. He did not establish his residence at Northfield before March, 1858. Then he remained in Northfield until his death, except in 1862 to 1863 when he was assistant surgeon in the 4th Minnesota Regiment. Dr. Scofield was a member of the Legislature (1857-58). He also filled local public offices. He was Dr. Bemis' senior by ten years, and remained in Northfield to a ripe old age.

Beckwith, Edmond.—Came to Faribault in 1878, succeeding Dr. Nichols at the "Deaf and Dumb and Blind Institute." He supposedly moved to California before 1883. He died in 1915 at the age of seventy-nine.

Brubaker, Evans Edward.—He practiced in Northfield approximately between 1890 and 1909. He was born January 1, 1852, in Ohio, the son of Henry and Bea Brubaker, who originally came from Pennsylvania. Dr. Brubaker graduated from Sterling Medical College, Ohio, in 1878 and was licensed in Minnesota January 28, 1884. He and his wife, Caroline, came to Northfield soon after their marriage in Ohio. They had four sons: Delmar of Washington; Ernest of Albany, N. Y.; Howard taught in Kansas; and Walter of Milwaukee; and one daughter, Mrs. Bertha Masolf of Houston, Texas. All attended Carleton College. Dr. Brubaker died January 5, 1910, at the age of fifty-eight from carcinoma of the liver. He was buried at Northfield. Mrs. Brubaker later moved to St. Anthony Park, St. Paul, where she continued to live for many years.

Coater.—A Dr. Coater came to Rice County on May 19, 1880. No physician by that name was licensed in Minnesota and nothing more is known about him.

Coe, Samuel Buel.—Came to Minnesota in 1861 settling in Morristown. He was born in Randolph, Ohio, on August 1, 1835, and was educated at Oberlin College. His medical training he received at Rush Medical College. During the Civil War he served as assistant surgeon in the Minnesota Heavy Artillery. In

1877 he was representative in the state legislature. He may have received a degree from Western Reserve University in the 1880's. His Minnesota license certificate is dated May 4, 1886. A Morristown news item of February 9, 1887, reads: "Dr. Coe goes to Waterville Friday to assist Dr. Case in a delicate and hazardous surgical operation," indicating that he had a good medical training and that his services were in great demand. He apparently also lived and practiced in Faribault. In the 90's he practiced for many years at Fitzgerald, Georgia (he was licensed in Georgia in 1896). Later he practiced in Minneapolis. He died at his home in Rochester, Minnesota, on May 29, 1910, at the age of seventy-five.

Dr. Coe's American ancestry goes back to Robert Coe who arrived at Pilgrim Rock in 1634. His son, Dr. Henry Waldo Coe, was born in 1857. He started his education at the University of Michigan and commenced his medical studies under his father's supervision. He graduated from the Long Island College Hospital in 1880 and began practice in Mandan, then a village in Dakota Territory. He was the first physician to settle in North Dakota, west of the Mississippi. He became an important figure in medical and civic organizations. In 1891 he moved to Oregon and later specialized in nervous and mental diseases, owning and operating the Morningside Hospital. He gave outstanding services to the insane in Alaska for over twenty years. Famous is his friendship with Theodore Roosevelt which lasted until the latter's death. Dr. Coe was responsible for the bronze statues of "Roosevelt the Rough Rider" at Portland, Oregon, and Minot, North Dakota.*

Cool, Daniel M.—Practiced in Faribault from about 1890 to 1905. He graduated from Rush Medical College, Chicago, in 1861 or 1862. During the Civil War he served as surgeon in the Third Iowa Volunteer Infantry. He was licensed in Illinois in 1877, and for several years held the position of professor of diseases of children at the Chicago Medical College. In Minnesota he was licensed on November 16, 1883. For nine years he was health commissioner and for many years city physician of Faribault. He was a member of the Rice County Medical Society, the Minnesota State Medical Society and the American Medical Association. Dr. Cool died at the age of eighty-two at his home in Faribault on December 14, 1905, from heart disease after a long period of invalidism.

A **Dr. Cooley** "of Faribault" is mentioned in a St. Cloud newspaper of December 2, 1875. It mentioned that he formerly practiced in St. Cloud and that he received an offer to take charge of the St. Louis City Hospital and planned to accept it.

Coon, Hiram L.—Licensed to practice in Minnesota on October 11, 1883. In the "History of Rice County," published in the year 1882, is the following biography:

"Hiram L. Coon, M.D., was born in Grafton, New York, on the 25th of August, 1828, and reared to agricultural pursuits. He removed with his parents to Milton, Rock County, Wisconsin, when twelve years of age, received an education at the common schools, Milton Academy, and Rush Medical College in Chicago, from which he graduated in 1854. He commenced the practice of his profession in Rutland, Dane County, Wisconsin, where he was married in 1855, to Miss Sarah Morton, daughter of Roger Morton. In 1856, he removed to Austin, this State, and in 1861 to Northfield, where he has been in constant practice since, giving special attention to surgery. He is a member of the State and also of the American Medical Societies."

*See "Sketches of Pioneer Physicians of Dakota County" (Dr. Henry Waldo Coe) *Journal-Lancet*, June 1, 1931, and Dr. J. Grassick *North Dakota Medicine, Sketches and Abstracts*, North Dakota Medical Association, 1926.

Cooper, J. B.—A doctor by this name "of Northfield" is mentioned in a St. Cloud newspaper item, dated April 21, 1881. It tells of his arrival in St. Cloud for the purpose of locating there. He supposedly had thorough professional experience and was a homeopath, having graduated from the Homeopathic College at St. Louis and a Hahnemann institution. He did not stay very long in St. Clould as a newspaper of August 11 of the same year tells of his leaving St. Cloud "a few weeks ago" and his association with a physician in Little Falls. Nothing could be discovered that would shed further light on his stay in Rice County.

Cummings, D. J.—Graduate of the Chicago Medical College. He came to Farmington, Dakota County, in the 50's and his card appeared in the *Dakota Weekly Journal* in June of 1856. He reported a case of leprosy which caused great excitement in Farmington. He practiced but a short time in Northfield, and returned to Farmington in 1877.

Dale, Harvey (or Henry) Newton.—Was in Rice County over half a century. Dr. Dale was born in Butler County, Ohio, August 2, 1831. He graduated from the Eclectic Medical Institute, Cincinnati, Ohio, in 1856, and settled in Rice County in the same year. As early as 1867 he resided in Faribault. He must have gone back to school as he graduated from Bennett Medical College, Chicago, in 1876. Dr. Dale died June 13, 1909, at his home in Faribault.

Daniels, Jared Waldo.—A prominent man in the medical history of Minnesota and about whom short biographies have appeared in the medical history of several counties. He was a colorful figure, well-known for his courage during the Indian Uprising. He practiced in Faribault from the fall of 1865 when he was mustered out as surgeon in the Civil War for over two years and settled there again in 1887. It is questionable whether he engaged in the private practice of medicine at this second period in Faribault. In 1900 he moved to California.

The following biography was copied from an apparently unpublished typewritten manuscript in the possession of the Historical Committee of the Minnesota State Medical Association entitled "The Biographies of St. Peter Physicians: Includes only such as came prior to 1873 and were prominently identified with the profession and the city."

"*Jared Waldo Daniels,* M.D., was born at Stratford, New Hampshire, June, 1827. His grandfather was one of the earliest and most prominent settlers of the town, and had served four years in our army in the war for American independence. The doctor received his preparatory education at the public schools and at the Lancaster Academy and was for some years a teacher. He pursued his medical studies with his uncle, Dr. Hatch, at Boston and after attending three courses of medical lectures graduated M.D. from the Bellevue Medical College, New York City.

"In March, 1855 he came to Minnesota and was appointed physician to the Upper Sioux Indians at Yellow Medicine where he was in care of the Indians belonging to that agency and the United States troops stationed there; he resigned from this position July, 1861 and removed to St. Peter and entered upon the practice of his profession.

"In 1862 he was appointed assistant surgeon in the Sixth Minnesota Infantry and was with the regiment under General Sibley in the campaign of that year. The first duty required of the doctor by Col. Sibley after joining his regiment was to establish a hospital in St. Peter for the care of those wounded at New Ulm during its defense and all others of the refugees. At that time there were over two thousand people gathered in St. Peter who had escaped from the border and many of them required medical treatment. Within forty-eight hours after the request was made by Col. Sibley, with the prompt assistance of the noble women of St. Peter, there were sixty beds in the old courthouse ready to occupy; after seeing all the wounded provided for he turned the care of the hospital over to his brother, Dr. A. W. Daniels.

"He served as special surgeon of the command under Maj. Joseph R. Brown at the battle of Birch Coulie. In this engagement twenty-two were killed, sixty wounded and eighty-seven horses killed—one-third of the entire command—and where they were thirty-six hours without food, water or sleep. Hon. Charles W. Johnson who was present at the battle, made the following statement which appears in the official record of that engagement:

> 'Assistant Surgeon, Jared W. Daniels, had accompanied Company "A" to Birch Coulie and no man on any battlefield displayed more heroism. On the morning of that fateful 2nd of September he is remembered as going about bareheaded examining and binding up the wounds of the men. He was in great personal danger but seemingly unheedful of it all, he never flinched for a moment, and for thirty-six hours he never ate a morsel of food nor closed his eyes for sleep, so great was the demand upon him.'

"In 1863 the doctor crossed the plains with General Sibley to the Missouri river and participated in the battles of Big Mounds, Buffalo Lake and Stony Lake. On his return to Minnesota he was promoted to Surgeon in the Second Minnesota Cavalry, and again crossed the plains with his regiment in 1864, joining General Sibley on the Missouri, and was with him on his march to the Yellowstone. On this campaign he was present at the battles of Kill Deer Mountain, and Bad Lands. On his return he was stationed at Fort Snelling in charge of the general hospital until he was mustered out in the fall of 1865. Soon after he located at Faribault for the practice of his profession.

"In 1868 Bishop Whipple had money placed in his hands by an act of Congress for the benefit of the Indians at Fort Wadsworth in Dakota. Doctor Daniels being well acquainted with these Indians was selected by the Bishop to go to the Fort to take charge of all supplies and look after the relief of these destitute people. The following year he was appointed by President Grant, Indian Agent for the Indians he had been in charge of the previous year. These were the Upper Sioux under Standing Buffalo who did not join the lower bands at the Lower Sioux Agency in the massacre of 1862. The Doctor established the Sisseton Indian agency, gathered them on the reservation, encouraged them to take lands in severalty, and required them to work for themselves, or at the agency, to pay for everything they received from the Government. When he left them in 1871 all had land under cultivation, were living in houses of their own building, and most of them had discarded their Indian costume; schools were established, a code of laws provided for the government of the people and officers to enforce them, and formed the first police force of Indians in the history of the Government, to patrol the reservation and the frontier, and to surpress the importation and sale of liquor.

"Dr. Daniels was transferred by President Grant to the Red Cloud Agency in Wyoming to pacify the Sioux and other hostile tribes. Here he found about five thousand Indians, consisting of Sioux, Cheyenne and Araphoes, the greater portion of them being in a turbulent state and hostile to the Government. Under the Doctor's generous treatment the number increased by others coming in from the north and south until there was over eight thousand, peaceably disposed, when he left them nearly three years later.

"In the fall of 1873 he was appointed inspector of Indian Agencies, in which capacity he visited the Agencies in Dakota, Minnesota, Montana, New Mexico and Arizona. In 1875 he was sent alone to treat with Red Cloud and Spotted Tail Indians to induce them to give up their rights in the country south of the North Platte river, after the Indian Department in Washington had failed with a delegation of these Indians called there for that purpose. He not only induced them to relinquish their rights, but dictated what they should receive in payment instead of guns and ammunition which they most urgently demanded. In the fall of 1875 he was made disbursing officer on a large Commission sent to treat with the Sioux for the Black Hills. They were unable to make a treaty. The year 1876 he was appointed on a Commission to secure the cession of the Black Hills and a treaty was affected by which the Hills were ceded to the Government. In 1886 he was again appointed on a Commission to make treaties with Indians in Minnesota, Dakota, Montana, Idaho and eastern Washington. Treaties were made with all these tribes by which many million acres of land was relinquished to the Government. He left the Government service in 1887 and returned to Faribault, where he has since resided, until two years ago, when he removed to Los Angeles, California. The Doctor is a member of the Loyal Legion Commandery of Minnesota, and the Grand Army."

DeCousens, John R.—He practiced a time in Dundas. In 1880 he made a report to the Minnesota State Board of Health of Diphtheria in Rice County covering the

twelve months of 1 November, 1879-1 November, 1880. He was licensed by an exemption certificate on December 31, 1883. Probably in 1881 he moved to Lanesboro, Fillmore County, and practiced there for several years—at least until 1885 or 1886—and acted as local health officer.**

Denison, Lucius W.—Settled in Faribault about 1850 and was Representative in the Legislature 1878 to 1879. He was born in Brookfield, N. Y., on December 17, 1819.

Denninger, P. J.—A homeopath. He was born in Berlin, Germany, on January 20, 1848, and came to the U. S. with his parents in 1862. He arrived in Minnesota in 1871. Dr. Denninger graduated from Hahnemann Medical College, Chicago, in 1878. He was licensed on 22 April, 1884, and set up his shingle in Faribault this same year.† His office was in the Theopold Block. His card in the weekly newspaper stated that he paid "special attention to the treatment of chronic diseases."

Dight, Charles Fremont.—Graduate of the University of Michigan's Medical School in 1879. He was licensed in Minnesota on October 4, 1889, and came to Faribault where he established his practice. He is no doubt identical with the well-known pioneer in eugenics who fathered the Institute of Eugenics at the University of Minnesota, organized the American Eugenic Society, wrote "Eugenics," "History of the Early Stages of the Organized Eugenics Movement in Minnesota for Human Betterment," et cetera.

He was born in 1856 or 1857 at Mercer, Pennsylvania, and studied medicine at the University of Michigan. For a while he practiced in Michigan then began a career of teaching (University of Michigan, Tulane University, University of Minnesota). Six years he spent in Syria. He died in June, 1933, at the age of eighty years.

Everett, Edward.—There is no record of his being licensed to practice in Minnesota. He practiced at Paynesville, Ohio, and at Racine, Wisconsin, before the outbreak of the Civil War. He was surgeon to the 11th Wisconsin Regiment throughout the four years of the war. He came to Faribault to re-establish his practice in civil life on December 6, 1865. He either died or retired and departed Faribault before the early licenses to practice medicine in Minnesota were first issued in 1883.

**See Nora H. Guthrey, "Notes on the History of Medicine in Fillmore County prior to 1900." MINNESOTA MEDICINE, page 1141, November, 1946.

†He supposedly settled in Faribault as early as 1881, according to a history of Rice County of 1882.

(To be continued in April issue)

Public Health

RECOMMENDED PRACTICES IN THE PREVENTION OF RETROLENTAL FIBROPLASIA*

Incubator oxygen concentrations above 40 per cent are directly associated with the development of retrolental fibroplasia in prematurely-born infants. Available data indicates that the limitation of oxygen to premature infants does not increase neonatal mortality. Oxygen should not be given routinely to premature infants but for the specific indications of cyanoses and respiratory distress.

1. It is recommended that the routine administration of oxygen to premature infants be discontinued. When the physician specifically orders oxygen administration to premature infants, the incubator oxygen concentration should be kept under 40 per cent.

2. To insure incubator oxygen concentration under 40 per cent one of the following devices may be employed:

(a) Melco minus 40 per cent oxygen concentration device which is attached directly to the incubator with metal fittings and makes it impossible to administer oxygen in excess of 40 per cent concentration, regardless of oxygen flow. This is manufactured by the Melchior, Armstrong. Dessau Co., Ridgefield, New Jersey. Price, including humidifier which may or may not be used, for hospitals with piped in oxygen—

Melco 758—$48.50 F.O.B., Ridgefield, New Jersey.

For hospitals without piped in oxygen—

Melco 759—$78.00 F.O.B., Ridgefield, New Jersey.

(b) Analysis of oxygen concentration of incubator between one and two hours after turning on oxygen supply to incubator. There are two types of oxygen analyzers which are simple to operate and operate by means of contained batteries:

(1) The Mira oxygen analyzer OXA-100 is available from the Medical Instrument Research Associates, 2656 N. Pasadena Avenue, Los Angeles 31, California. Price $147.00 F.O.B. Los Angeles, California.

(2) The Arnold O. Beckman Model D oxygen analyzer is available from Arnold O. Beckman, Inc., 1020 Mission Street, South Pasadena, California. Price $190.00 F.O.B. South Pasadena, California.

(c) If the Melco minus 40 per cent oxygen concentration device is used, it is not necessary to use an oxygen analyzer. It is felt that the Melco device is more desirable and easier to use than the oxygen analyzers.

Minnesota Department of Health
Section of Maternal and Child Health

*Approved by the Council of the Minnesota State Medical Association, October 1, 1955.

CURRENT CARDIAC CONCEPTS

The Value of Prolonged Anticoagulant Therapy

(Continued from Page 39)

coagulant therapy is far outweighed by the benefits obtained. It must be emphasized that it should not be undertaken by any physician who is unwilling to thoroughly acquaint himself with these details, who is not fully cognizant of the hemorrhagic possibilities involved, who has not available the services of a dependable technician well trained in determining the prothrombin time, and who has a patient insufficiently intelligent and cooperative to understand the program and cooperate in its administration.

In conclusion, the use of long-term anticoagulant therapy in selected conditions is discussed and advised. It is rapidly being broadly accepted as a valuable addition to therapy. It demands meticulous care in its administration but is rewarding in the reduction of morbidity and mortality which it effects.

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Miscellaneous

AMA DELEGATES' REPORT

Taciturnity, traditionally endemic to New England, isn't communicable to visitors. That is our conclusion after participating in a round of proposing, debating, resolving, commending, and condemning at this year's House of Delegates meeting in Boston. In three days, the doctors talked their way through thirty-seven resolutions and about 400 pages of reports.

Nine years ago, the AMA set up the midwinter sessions to appeal to the general practitioner—and this was his year. Several protests of general practitioners were put into one resolution which calls for:

1. AMA representatives on the Joint Commission on Accreditation of Hospitals to seek punitive action against hospitals which exclude or arbitrarily restrict hospital privileges for general practitioners as a class, regardless of their individual professional competence, after appeal to the Commission by the county medical society concerned.

2. A new and continuing Committee on Medical Practice of five members (including three general practitioners) to study the relative value of diagnostic, medical and surgical services; stimulate the formation of departments of general practice in each medical school; help the AMA's public relations department educate the public on "all of medicine"; and to "use its full influence to discourage arbitrary restrictions by hospitals against general practitioners as a group or as individuals."

There was more. After the report of the Committee on Medical Practices had been heard, the House of Delegates ordered:

1. An education program to increase the public's appreciation of non-surgical work.
2. A reappraisal of the practice restrictions of the various specialty boards.
3. That the American Hospital Association and any other interested groups be told that organized medicine is ready, willing and able to solve its own problems.

Liability Insurance Studied

The AMA committee studying professional liability insurance made a progress report. Tentative conclusions from a survey indicate that liability claims are most frequently caused by x-ray burns, foreign body left in patient after surgery, imperfect results from orthopedic surgery, failure to obtain consent prior to surgery, inaccurate prescription of drugs or improper diagnosis, criticism of one M.D. by another, excessive fees, and a poor doctor-patient relationship. The full report, due next year, should serve as a basis for action to decrease the causes and number of liability claims. If this can be done, it is reasonable to assume that this type of insurance will become more widely available at a reasonable cost.

The failure of voluntary contributions to raise sufficient funds for the American Medical Education Foundation has led to the prospect of an increase in AMA dues. The money would be earmarked for the AMEF.

Besides the delegates, representatives from Minnesota included President-elect R. H. Wilson, M.D., Winona, and R. R. Rosell, executive secretary. Others were Drs. Edgar V. Allen, Robert R. Kierland, Clark H. Millikan, Jack P. Whisnant, Howard A. Andersen, William L. Benedict, R. O. Brandenburg, Daniel C. Connolly, Victor Johnson, Byrl R. Kirklin, Frank R. Krusen, R. G. Sprague, and Edward N. Tihen, all of Rochester. Doctors Harold E. Coulter, Madelia; Harold S. Diehl, Minneapolis; Reuben Erickson, Minneapolis; J. C. Jacobs, Willmar; H. B. Sweetser, Minneapolis; Charles C. Cooper, Saint Paul, and Harry B. Hall, Edina, also attended.

Full details of the meeting will be printed in *The Journal of the AMA,* starting with the December 10 issue. Here is a brief recapitulation of some of the highlights:

AMA condemned free polio vaccine "except for those unable to pay"; distribution should be through usual channels hereafter.

A complete revision of the Principles of Medical Ethics is in the offing. The proposal will be circulated to every AMA member before the June, 1956, meeting in Chicago.

A guide for establishing local grievance committees was approved. Copies will be sent to all societies; but before a county society sets up such a committee, it is urged to contact the state secretary's office for further help and advice.

Licensure of clinical psychologists was opposed.

The AMA will get behind a new plan to interest medical men in military careers. If successful, this could eliminate need for draft.

The AMA Board of Trustees was instructed to figure out how to deal with new and unconfirmed methods of diagnosing and treating cancer. Cancer commissions run by state medical societies were suggested.

A resolution offered by the North Central Medical Conference commended Iowa physicians for their successful initial effort to establish that the

(Continued on Page 67)

In Memoriam

SAMUEL H. BOYER

Dr. Samuel H. Boyer, Sr., former president of the Minnesota State Medical Association and pioneer Minnesota physician, died November 12, 1955. He was eighty-nine years old.

Born in Oil City, Pennsylvania, Dr. Boyer was graduated from the University of Pennsylvania medical school in 1890. He started his practice in Duluth in 1891. He was active in many civic affairs besides being a leader in his profession. He was St. Louis County coroner, and served two terms on the Duluth board of education. The system of medical examination for school children which he instituted is in force today.

Dr. Boyer had been president of the St. Louis County Medical Society and was former chief of staff of St. Luke's Hospital.

In 1950, he was presented with the Distinguished Service Award of the State Medical Association by Dr. O. J. Campbell who said:

"Dr. Samuel H. Boyer, Sr., has been an active participant in medical affairs for many years. He has been a member of the State Board of Health and was appointed a member of the Basic Science Board. He was elected president of the Minnesota State Medical Association for 1930 and has served as a councilor, a committee chairman, and as a state delegate.

"Dr. Boyer, this citation is well-deserved acknowledgment from your colleagues of the many years of meritorious service you have given to the field of medicine."

Dr. Boyer is survived by a son, Dr. Samuel H. Boyer, Jr.; a daughter, Mrs. Donald Parmalee, Beverly Hills, California, and three grandchildren.

CHARLES FAY BRIGHAM, SR.

Dr. Charles F. Brigham, Sr., who had practiced medicine in St. Cloud for fifty-two years, died October 15, 1955. He was seventy-nine years old.

Born in Lancaster, Wisconsin, Dr. Brigham moved to St. Cloud with his father, Dr. George S. Brigham, in 1878. He graduated from the University of Minnesota medical school in 1902, and interned at St. Mary's Hospital in Duluth.

He began his practice in St. Cloud in 1903. He served as city physician and at the time of his death was the oldest practicing physician in St. Cloud.

Dr. Brigham was a life member of the Minnesota State Medical Association, the American Medical Association and the Stearns-Benton County Medical Society. He was a "Fifty Club" member of the State Association. He was also a member of Nu Sigma Nu, medical fraternity.

He is survived by his wife; a son, Dr. C. F. Brigham, Jr.; and two grandchildren, all of St. Cloud. His sister, Mrs. Florence D. Colbert, lives in St. Paul.

RALPH H. CREIGHTON

Dr. Ralph H. Creighton, Minneapolis physician, died November 11, 1955, at the age of fifty-seven. He was chief of staff at Abbott Hospital.

Dr. Creighton was born in Minneapolis and practiced there from the time of his graduation from the University of Minnesota in 1923, except for a period of war service with the 34th infantry.

Dr. Creighton was chairman of the Committee on Veterans' Affairs of the Minnesota State Medical Association. He was a member of the American Medical Association and, in 1947, was president of the Hennepin County Medical Society. He was a member of the Minnesota Academy of Medicine and the American Academy of General Practice.

Non-medical groups, of which he was a member, included the Masons, Delta Upsilon and Nu Sigma Nu fraternities, the University Club and St. Paul's Episcopal Church.

Surviving are his wife; two sons, James G. of Minneapolis and John E. of Dallas, Texas, and his mother, Mrs. Clare Rees Creighton, Minneapolis.

CHARLES E. DUTTON

Dr. Charles E. Dutton, ninety-four, a member of the first class to be graduated from the University of Minnesota medical school, died Noevmber 5, 1955. Dr. Dutton, who carried on his practice in his home office in Minneapolis until recently, was the only surviving member of the class of 1889.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and was elected an affiliate fellow in the American Medical Association in 1929. He served as Minneapolis health commissioner in 1914 and 1915.

Dr. Dutton bought a car in 1902 and became the first physician in Minneapolis to visit country patients in a horseless carriage. He rebuilt this Locomobile Steamer, sold to him by Dr. Charles Mayo, and won a race attaining the terrific speed of 30 miles an hour. He was an early trustee of the Automobile Club of Minneapolis, president of the Minnesota Automobile Association and a director of the Twin City Motor Speedway.

Survivors include his wife, and a daughter, Mrs. Lowell M. Canfield, St. Louis Park.

REINHOLD MILTON ERICSON

Dr. Reinhold Ericson, fifty-three, died November 20, 1955. He had been an eye, ear, nose and throat specialist in Minneapolis until his retirement in 1951.

Born in Lafayette, Minnesota, Dr. Ericson was graduated from Washington University medical school, St. Louis, Missouri. He interned in Baltimore and took postgraduate work in Vienna. He was a veteran of World War II.

Dr. Ericson was a member of Westminister church, the Minneapolis Athletic Club, Lafayette Club, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the American College of Surgeons and the International College of Surgeons.

His survivors include his wife; a son, John; a daughter, Mrs. Byron Anderson; two grandchildren, and his mother, Mrs. J. G. Ericson, all of Minneapolis.

RAYMOND F. HEDIN

Dr. R. F. Hedin, surgeon of Red Wing, died October 21, 1955, after a brief illness. He was forty-nine years old.

Dr. Hedin spent his early boyhood in Sioux City, Iowa. He attended schools in Red Wing before taking undergraduate study at the University of North Dakota. He graduated from the University of Minnesota medical school in 1930 and interned at the University Hospital. He spent a year each at Cook County Hospital and Wesley Memorial Hospital in Chicago as a resident in surgery and another year at Chicago Presbyterian as a resident in urology. During this time, he wrote a prize-winning essay on "Polypoid Disease of the Colon" which received an award from the Chicago Surgical Society.

The Goodhue County Medical Society, the Southern Minnesota Medical Association, the Minnesota State Medical Association and the American Medical Association were among his professional affiliations. In 1950, he was president of the Southern Minnesota Association. He was also a member of the Minnesota Medical Foundation, the Central Surgical Society, a fellow of the American College of Surgeons and a diplomate of the American Board of Surgery.

Dr. Hedin was active in civic affairs also. He served as mayor of Red Wing from 1945 to 1949. He was president of the Red Wing Junior Chamber of Commerce and a leader in the Democratic-Farmer Labor party.

Dr. Hedin is survived by his wife; his daughter, Barbara; three sons, Douglas, Thomas and Robert; and his mother, Mrs. Carl K. Reckner.

JOHN BURTON HOLST

Dr. John B. Holst, for many years a physician in Little Falls, died October 17, 1955, in Minneapolis. He was eighty-three years old.

Dr. Holst was born in Goodhue County in 1871. After graduating from the medical school of the University of Minnesota, he practiced briefly at Lake Benton before going to Little Falls and setting up a partnership with his brother, Dr. Fred Holst. Both retired in 1947.

He was a member of the Upper Mississippi Medical Society, the Minnesota State Medical Association and past president of the Northwest Medical Association. For many years, he was district surgeon for the Northern Pacific railway.

His daughter, Mrs. Platt Nellermoe, Wayzata, survives him. He is also survived by his brothers Henry, Austin; William, Red Wing; Alwyn, Coleraine; and a sister, Clara Holst, St. Paul.

WALTER J. MARCLEY

Dr. Walter J. Marcley, born at Franconia, Minnesota, in 1867, died November 8, 1955, in Minneapolis. He had been a pioneer and leader in the study and treatment of tuberculosis. He was one of the founders of the National Tuberculosis Association.

Dr. Marcley taught school for several years after graduating from the University of North Dakota. He then entered Boston University medical school and received his degree in medicine in 1895. He served his internship at Millard Fillmore Hospital in Buffalo and entered general practice in New York state.

In 1897, he became a student at Dartmouth College and was awarded another degree in medicine in 1902. While attending Dartmouth, he was affiliated with the Massachusetts State Sanatorium at Rutland and became superintendent of that institution.

He remained there until 1907 when he returned to Minnesota to assume direction of the Minnesota State Tuberculosis Sanatorium at Walker. In 1911, he entered private practice in Minneapolis, but remained active in the fight against tuberculosis. He was chief of the tuberculosis service at General Hospital in Minneapolis from 1912 to 1922 and medical director of Glen Lake Sanatorium from 1916 until he went to France with the Rockefeller Tuberculosis Commission. In 1919, he became chief physician for the Red Cross in Switzerland. When he returned to the United States, Dr. Marcley took over the post of Chief of the Tuberculosis Service for the Veterans Bureau at Thomas Hospital in Minneapolis and later at the Veterans Administration Hospital at Fort Snelling.

Dr. Marcley joined the medical staff at Nopeming Sanatorium and worked there from 1937 until 1941. For many years, he was on the staff of the Minnesota Department of Health as consultant in tuberculosis.

Dr. Marcley was a life member of the Minnesota State Medical Association and the St. Louis County Medical Society. He was a member of the National Tuberculosis Association, the American Sanatorium Association, the International Union Against Tuberculosis, the Minnesota Trudeau Society and the American Academy of Tuberculosis Physicians.

Survivors include his son, Dr. David M. Marcley of Amarillo, Texas, and two sisters, Mrs. Edward F. Cushman, Palmer, Massachusetts, and Mrs. Mamie Alley, Minneapolis.

SAMUEL MILLER

Dr. Samuel Miller, radiologist at Naeve Hospital in Albert Lea from 1950 to 1954, died October 12, 1955, in Jamestown, North Dakota, where he was practicing.

Dr. Miller was born in Russia in 1905. He attended St. Paul schools and received his medical education at the University of Minnesota. After his graduation in 1929, he practiced for ten years in North and South Dakota and then served for six years with the U. S. Army. He took postgraduate work in radiology at the University of Minnesota before going to Albert Lea.

He was a member of the Freeborn County Medical

Society, the Minnesota State Medical Association and the American Medical Association.

He is survived by his mother, wife, and two brothers, all of Bismarck, North Dakota.

ROBERT LYMAN NELSON

Dr. Robert L. Nelson, Duluth internist, drowned accidentally on November 12, 1955, while vacationing in Florida. He was fifty-five years old.

Dr. Nelson was born in Chicago. He attended Northwestern University medical school, graduating in 1925. He opened his practice in Duluth in 1927, specializing in internal medicine and cardiology. He was a member of the staff of St. Mary's, St. Luke's and Miller Memorial Hospitals. He was chief of staff of St. Luke's Hospital in 1951.

Dr. Nelson was a member of the St. Louis County Medical Society, the Minnesota State Medical Association, the American Medical Association, the Duluth Society of Internal Medicine, and the American Heart Association. He was a diplomate of the American Board of Internal Medicine.

Survivors are his wife; his daughter, Phyllis, Duluth; his mother, Mrs. A. M. Nelson, Chicago; a sister, Mrs. A. H. East, Chicago; and a brother, Ray.

BURT FRANK OSBURN

Dr. B. F. Osburn, physician of International Falls until he retired in 1940, died October 11, 1955. He was eighty-five years old.

Dr. Osburn was a graduate of Hamline University and the University of Minnesota medical school. He practiced in Baudette before establishing a practice in International Falls in 1919. He was administrator of the Northern Minnesota Hospital for many years.

Dr. Osburn was a member of the Upper Mississippi Medical Society and the Minnesota State Medical Association.

Mrs. Osburn is the only immediate survivor.

HENRY WILLIAM QUIST

Dr. Henry W. Quist, general surgeon of Minneapolis since 1908, died November 6, 1955, at the age of seventy-six. He collapsed on the University campus where he had planned to attend a lecture.

Dr. Quist was born in Chisago City. He attended Gustavus Adolphus College and Hamline University and graduated from the medical school of the University of Minnesota in 1907. He interned at Swedish Hospital where he later served on the staff. In 1924, he was chief of staff.

He served on the board of the American Swedish Institute, was a member of Zion Lutheran church, the Minneapolis Athletic Club, the Minneapolis Automobile Club, the Masons and the Scottish Rite.

Dr. Quist was a life member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association and was a fellow of the American College of Surgeons.

He is survived by his wife and his son, Dr. Henry W. Quist, Jr. His two sisters, Mrs. Frances Hedlund, Paynesville, and Mrs. Anna Shogren, Minneapolis; a brother, Otto, Minneapolis, and five grandchildren are other surviving relatives.

JOHN ALOIS THABES

Dr. John Thabes, fifty-four, widely-known Minnesota physician and Crow Wing county coroner for twenty years, died October 14, 1955.

Dr. Thabes was born in Brainerd and was graduated from the University of Minnesota medical school in 1925. He served his internship at St. Mary's Hospital in Duluth, and entered into practice with his father, Dr. John Thabes, Sr., in 1926.

A fellow in the American College of Surgeons, Dr. Thabes was also a member of the Upper Mississippi Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a member of the Masons and the Elks.

He is survived by his wife; two sons, John, St. Paul, and Rudd, Brainerd; three daughters, Mrs. John Gilbert, Cucuta, South America; Mrs. John Schmidtke, Elgin, Illinois; and Tamara, Brainerd; four grandchildren, and a sister, Mrs. Lois Adelaide Hensley, Tulsa, Oklahoma.

HOWARD H. WOLFE

Dr. Howard Wolfe, who practiced medicine in Saint Paul from 1921 to 1940, died November 9, 1955, in San Francisco. He was fifty-five years old.

Dr. Wolfe entered the Army Medical Corps in 1940. He served for six years and then joined the Veterans Administration. He became chief medical officer of Northern California and was holding that post at the time of his death. In October, 1955, Veterans Administration officials presented him with the "exceptional service award," highest award ever given by the Administration.

He was a past commander of the Business and Professional Men's post of the American Legion in Saint Paul.

Survivors are his wife; a daughter, Mrs. Audrey Gruettenden of Los Gatos, California; a son, Dennis H. of San Francisco; and a brother, John I. of Los Angeles.

A program of research into the cause and prevention of heart disease should be undertaken on international lines under the auspices of the World Health Organization (WHO) according to the recommendations made by the WHO Study Group on Atherosclerosis which met in November in Geneva under the chairmanship of Dr. Herman Hilleboe, New York State Commissioner of Health.

The disease recommended for special investigation, "because of its paramount importance as a public health problem" is ischemic heart disease, defined by the WHO Study Group as "the cardiac disability, acute and chronic, arising from reduction or arrest of blood supply to the myocardium . . . the result of disease processes in the coronary arterial system. The main pathological processes involved are atherosclerosis and thrombosis of these vessels."

The most clearly recognized types of ischemic heart disease are myocardial infarction due to coronary obstruction (angina pectoris).—WHO News Release.

Reports and Announcements

MEDICAL MEETINGS

State

Minnesota State Medical Association, annual meeting, Mayo Civic Auditorium, Rochester, Minnesota, May 21-23, 1956.

National

Congress on Industrial Health, 16th annual meeting, Sheraton-Cadillac Hotel, Detroit, Michigan, January 23-24, 1956.

American College of Surgeons, sectional meeting, Hotel Schroeder, Milwaukee, Wisconsin, February 27-29, 1956. Dr. Forrester W. Raine, Milwaukee, chairman.

Atlanta Graduate Medical Assembly, Biltmore Hotel, Atlanta, Georgia, February 20-22, 1956.

Mediclinics of Minnesota, postgraduate course sponsored by Academy of General Practice of Broward County, Fort Lauderdale, Florida, March 5-14, 1956.

INTERNATIONAL COLLEGE OF SURGEONS

Regional Meetings

Four regional meetings of the United States and Canadian Sections, International College of Surgeons, are scheduled for 1956.

The first, the Mid-Atlantic Region, meeting will be held at the Green Brier Hotel, White Sulphur Springs, West Virginia, February 13-15. This will be followed by a meeting March 22-23 in San Jose, California. A Southeastern regional meeting will be held in the Read House, Chattanooga, Tennessee, April 30-May 1, and a New England regional meeting in the Marshall House, York Harbor, Maine, over the July 4 weekend.

In Chicago on September 9-13 the Tenth Congress of the International College of Surgeons will be held in conjunction with the Twenty-First Congress of the United States and Canadian sections. Headquarters will be in the Palmer House.

For further information, write the Secretariat of the United States Section, International College of Surgeons, 1516 North Lake Shore Drive, Chicago 10, Ill.

Examinations for Fellows

Four oral and four written examinations for Fellows in the United States Section of the International College of Surgeons will be conducted in 1956.

Oral conferences will be held on January 23, April 16, August 6 and October 22. The written examinations will be conducted on January 30-31, April 23-24, July 23-24 and October 29-30. These will be held at the Cook County Hospital and Cook County Graduate School of Medicine, Chicago.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE

The Fifth Congress of the Pan American Medical Women's Alliance will be held in Santiago and Vina del Mar, Chile, March 6 to 13, 1956. Also planned is a trip to include visits to hospitals and medical clinics in Mexico, San Salvador, Panama, and southern Chile under the guidance of some of the Chilean women doctors. Following the Congress a week will be spent in La Paz, Bolivia, visiting medical projects among the Incas. En route to Lima, there will be a trip across Lake Titicaca and ample opportunity to explore the archeologic treasures of Cuzco and Macchu Picchu.

Program chairman is Dr. Eva Cutright, Wooster, Ohio.

AMERICAN ACADEMY OF GENERAL PRACTICE

The Eighth Annual American Academy of General Practice Scientific Assembly will be held March 19-22, 1956, in the Washington, D. C., Armory.

During the four-day scientific meeting twenty-six outstanding speakers will discuss subjects ranging from cardiac emergencies to primary wound repair. There will be more than 60 scientific and 250 technical exhibits. Highlights of the program will include two live clinics, a symposium on obstetrics and an address by Surgeon General Leonard Scheele. Special tours through the National Institutes of Health, Bethesda, Maryland, have been arranged.

AMERICAN INSTITUTE OF DENTAL MEDICINE

The American Institute of Dental Medicine continues to offer Case Histories from the broad field of dental medicine for the year 1955-56. These include original 35 mm. Kodachrome slides of the oral condition, pertinent laboratory findings, medical background, roentgenograms, histologic slides, photomicrographs, diagnostic criteria and whatever else may be indicated in each individual case. A loose leaf binder and matching Kodachrome slide box are furnished each participant.

For further information write the Secretary, Mrs. C. Novembri, 2240 Channing Way, Berkeley 4, California.

HAWAII MEDICAL ASSOCIATION

Hawaii Medical Association, 100th anniversary meeting, Honolulu, Hawaii, April 22-29, 1956. For reservation applications, write Hawaii Medical Association, 510 South Beretania Street, Honolulu 13, Hawaii.

General Practice Review, postgraduate course sponsored by clinical departments and Office of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado, January 16-21, 1956.

CLINICAL REVIEWS AT MAYO CLINIC

A three-day program entitled Clinical Reviews will be held by the Mayo Clinic and Mayo Foundation at Rochester, April 9, 10 and 11. The program will consist of lectures and discussions on problems of general medicine and surgery. Presentations will be made by staff members of the Mayo Clinic and Mayo Foundation for Medical Education and Research.

The number of physicians who can be accommodated

is limited. For further information, write R. C. Roesler, Mayo Clinic, Rochester, Minnesota. There are no fees for the session.

MINNEAPOLIS OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The Minneapolis Obstetrical and Gynecological Society was organized at a dinner meeting held at the Minneapolis Club the evening of October 26, 1955. Officers elected at that time are: John A. Haugen, M.D., President; Rae T. La Vake, M.D., Vice President; and Francis M. Swain, M.D., Secretary-Treasurer. John L. McKelvey, M.D., and James Shandorf, M.D., were elected to serve with the officers on the Executive Council.

Present plans include holding meetings four or five times during the year.

CONTINUATION COURSES

The University of Minnesota announces a continuation course in *Eye, Ear, Nose, and Throat for General Physicians* which will be presented at the Center for Continuation Study from February 27 to 29, 1956. The most commonly seen problems in this field will be discussed and treatment will be stressed. The course will be presented under the direction of Dr. L. R. Boies, clinical professor and head of the Department of Otolaryngology, and Dr. Erling W. Hansen, clinical professor and head of the Department of Ophthalmology.

* * *

The University of Minnesota announces a continuation course in *Dietetics for Dietitians* at the Center for Continuation Study next March 1 to 3, 1956. Recent advances in the field will be stressed. The course will be presented under the direction of Miss Angeline D. Mannick, director of nutrition and associate professor of dietetics.

* * *

A continuation course in *Pediatrics for General Physicians* will be presented by the University of Minnesota at the Center for Continuation Study on March 5 to 7, 1956. Guest faculty will include Dr. Katharine Dodd, professor of pediatrics, University of Arkansas School of Medicine, who will also deliver the annual Phi Delta Epsilon Lecture on Tuesday evening, March 6. The course will be presented under the direction of Dr. John A. Anderson, professor and head, Department of Pediatrics.

* * *

The University of Minnesota, in conjunction with the Minnesota Heart Association, will present a continuation course in *Cardiovascular Disease for General Physicians* at the Center for Continuation Study from March 19 to 21, 1956. Management of the more frequently seen cardiovascular disorders will be stressed. Guest speaker will be Dr. Hans Hecht, Associate Professor of Medicine, University of Utah College of Medicine, Salt Lake City. The course will be presented under the direction of Dr. C. J. Watson, Professor and Head, Department of Medicine.

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

F. H. Magney, M.D., Secretary

MONTEVIDEO MAN SENTENCED ON ABORTION CHARGE

Re: State of Minnesota vs. Omer Peterson

On December 5, 1955, Omer Peterson, thirty-six, 913 N. Fourth Street, Montevideo, Minnesota, was sentenced in district court there by the Hon. Sam G. Gandrud, Judge of the District Court, to a term of not to exceed four years in the State Reformatory for Men at St. Cloud, Minnesota, pursuant to his plea of guilty to an information charging him with the crime of abortion, which plea had been previously entered before Judge Gandrud on October 17, 1955. The execution of the sentence was stayed, however, and the defendant was placed on probation in the custody and control of the State Board of Parole. One of the conditions of the probation prescribed by the Court was that Peterson shall be of good behavior and comply with and abide by all the rules and regulations that may be prescribed by the State Parole Board or any of its agents.

The defendant was arrested at Montevideo on July 5, 1955, and charged with the crime of abortion in a complaint issued on the same date, after a twenty-three-year-old Minneapolis divorcee had been hospitalized at University Hospital in Minneapolis suffering from the after-effects of an abortion. In a signed statement given to the authorities, Peterson, who said that he was a salesman for an air-conditioning and heating firm, admitted that he had attempted to perform an abortion upon the same woman about a year or two previously in Sioux Falls, South Dakota, by using a plastic drinking tube about 10 inches long. According to the defendant's statement, a similar instrument was used in performing the most recent abortion, which took place in a Montevideo hotel room on June 20, 1955. Peterson was paid the sum of $50.00 for his services in connection with this case. The defendant has no medical training and holds no license to practice any form of healing in the State of Minnesota.

AMA DELEGATES' REPORT

(Continued from Page 62)

practice of medicine (pathology and radiology) by hospitals is illegal.

AMA will ask the Federal Government to regulate safety standards of automobile construction.

Interim Session in Minneapolis

The Board of Trustees has accepted the invitation of the North Central Medical Conference to hold the Interim Session of 1958 in Minneapolis. This will be a splendid opportunity for large numbers of doctors in the upper Midwest to attend one of the clinical meetings.

J. Arnold Bargen, M.D., Rochester
George Earl, M.D., Saint Paul
O. J. Campbell, M.D., Minneapolis
F. J. Elias, M.D., Duluth
Delegates to the American Medical Association

Woman's Auxiliary

RADIO AS A PUBLIC HEALTH SERVICE

Mrs. O. M. Heiberg, Worthington

"Does Johnny Make the Team?", "Rabies," "Mental Health in Child Development," and "The Promise of Geriatrics" are among the various subjects discussed on "Your Health Hour," a 15-minute health information program on the air each Sunday afternoon, over radio station KWOA, Worthington, Minnesota.

This program is the outgrowth of the first rural "Health Day" held in Worthington, Minnesota, in February, 1949. The Southwestern Minnesota Medical Society, together with its Woman's Auxiliary and District V of the Minnesota Department of Health, have just completed seven years of weekly broadcasts as a public service to the community.

A committee composed of doctors, auxiliary members, and the advisory nurse of District V, Minnesota Department of Health, meet quarterly to plan the programs. Live broadcasts are used as well as "platters" obtained from the American Medical Association.

In planning the content of the programs, the particular interests of the six-county area are given consideration. For example, an outbreak of rabies in the area gave accent to a broadcast on that subject. Brucellosis is also of special interest here, so a program on that subject seemed pertinent. Since there is usually some National Health emphasis each month, a program on the monthly theme being sponsored with a live broadcast using a physician, nurse and/or layman from the area. The three organizations also give support to the school health program and co-operate with the school health councils by giving timely broadcasts on subjects at their request. When local groups are promoting Mantoux and Brucellosis tests, pasteurization of milk, safety programs, et cetera, the group has been on hand with live broadcasts to further emphasize the value of these public health services.

Using spot announcements to list the radio programs and the speakers has been the most effective method of alerting the listening audience to the programs. Posters have been used in physicians' offices, hospitals, and public meeting centers; but as they are seldom kept up to date, they are not being used at present.

Doctors and nurses, as well as lay people, have been enthusiastic and willing to co-operate when requested to participate in live broadcasts.

When the Minnesota Department of Health is able to provide a script writer and live broadcasts are used, the interest is much greater. This is shown in the number of letters and comments brought to the attention of the committee.

In summary, this broadcasting project has been a great success and well worth the effort. It is with pleasure that the Worthington group announces an expansion of the program. On January 8, 1956, the Southwestern Minnesota Medical Society, its Woman's Auxiliary, and District V of the Minnesota Department of Health congratulated Station KLOH, Pipestone, Minnesota, on starting a similar Sunday afternoon program to be called "Your Health Hour."

RAMSEY COUNTY AUXILIARY NEWS

Mrs. Lucian G. Culver, Saint Paul

Members of the Ramsey County Medical Auxiliary have been busy the past month assisting the Fourth District Nurses with their Nursing Recruitment Program. Their part in the program was to drive the student nurses to the various junior and senior high schools in Saint Paul.

Twice a year, student nurses from the different hospitals in Saint Paul present a panel discussion to these students. The purpose of the program is to acquaint the students with the various types of nursing. The panel consists of a moderator and a student from each class of the nursing profession. This includes the practical nurse, the three-year nurse and the degree nurse.

Mrs. R. K. Grau, chairman of the career committee for the auxiliary, reports that the students are very much interested in this program, and many students have been recruited on the strength of it.

The month of December is the time for the Christmas Seal sale throughout the country. A great many auxiliary members volunteered to staff Christmas Seal sale booths in the downtown area on the day specified for the auxiliary.

Speaking of Christmas Seals, four Ramsey County Auxiliary members participated in the quiz program devoted to the Christmas Seal sale which appeared on the "Cash and Carry" program on KSTP television recently. Twenty dollars, collected by the clever foursome, was donated to the Tuberculosis Association.

LABORATORY AIDS

Acute Infectious Hepatitis

(Continued from Page 38)

of serum. If at that time less than 5 per cent of sulfobromophthalein is retained in 45 minutes, the patient may resume normal activity. These two tests are repeated after two to four weeks.

3. If retention of the dye becomes stabilized consistently at 5 to 10 per cent, the patient may be dismissed. If values remain increased or if they fluctuate, individualized management in each case is indicated. Hepatic biopsy may be necessary.

4. Abnormal results of liver function tests may recur after they have become normal. The patient may have to be reconfined in such instances.